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ABSTRACT

This is a collection of school improvement materials from the Northwest Regional Educational Laboratory (NREL) school improvement research series. A topical synthesis, two "close-ups," and four "snapshots" focus on core aspects of early childhood education (ECE) and elementary education. The topical synthesis examines: (1) what well-designed research studies reveal about the long- and short-term effects of ECE: (2) whether different effects are produced by different program models; and (3) whether different populations of students respond differently to ECE in general or to particular schooling. Each NREL close-up provides detailed information on a single topic. Close-ups include a definition, a discussion of practice, and an annotated bibliography. Close-ups in this collection focus on classroom questioning and parent involvement in education. The NREL snapshots describe effective practices in the settings in which they are used. Snapshots collected here concern a literature-based reading instruction program at Pine Butte Elementary School in Colstrip, Montana; creative staffing arrangements at the Lynch Wood Elementary School in Portland, Oregon, and the Mukilteo School District in Everett, Washington; critical thinking across the curriculum at Aloha High School in a suburb near Portland, Oregon; and parent involvement at Spring Glen Elementary School in downtown Seattle, Washington. (RH)

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SCHOOL IMPROVEMENT RESEARCH SERIES

SERIES III
1988-89

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School Improvement Research Series

Topical Synthesis #3

Research on Early Childhood Education

Kathleen Cotton and Nancy Faires Conklin

Introduction

Education in the second half of the twentieth century has been characterized by increases in the provision of educational programs for preschool-age children. The largest wave of preschool education activity has been the federally funded Head Start program, established in the 1960s to help children overcome the cognitive, social, emotional, and physical deficits that frequently accompany growing up in economically deprived homes. By providing an array of educational and social services to children and their families, Head Start programs are designed to foster general well-being and enhance school readiness, so that these children might gain the full benefit of their school experiences and be more successful in life generally.

If Head Start and other programs for economically disadvantaged children can be shown to make a positive difference in these children's school and life experiences, their impact can be very widespread. Schweinhart (1985) points out that one-fourth of all children under the age of six are living in poverty, and that three-fifths of the mothers of three- and four-year-old children now work outside the home. However, fewer than 20 percent of the nation's three- and four-year-olds from poor families are currently enrolled in Head Start programs.

Kindergarten enrollment has also increased dramatically in recent years. While only seven states mandate kindergarten attendance, about 95 percent of all children currently attend kindergarten (Sava 1987), and 23 percent of these attend full-day programs (Karweit 1988).

In addition to the generally recognized need to provide some kind of extra support to children from low-income homes, there is another reason for the dramatic increase in educational programs for children before first grade. This is the increase, alluded to above, of mothers in the workforce. Many parents who are not at home with their children in the daytime are not satisfied with unstructured day care or babysitting, preferring that their children participate in more formal learning experiences.

Finally, some of the increased interest in and push for structured preschool programs comes from the unfortunate notion, held by some, that education is a race to be won, and those who start first are more likely to finish ahead. Commenting on this source of pressure for preschool education, Elkind (1988) says:

> ...the choice of the phrase "Head Start" was unfortunate. "Head Start" does imply a race. And not surprisingly, when middle income parents heard that low-income children were being given a "Head Start," they wanted a similar "Head Start" for their children. (p. 23)

A great many educators and researchers view early childhood education as beneficial to children's cognitive and social development. These proponents--including virtually all of

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the researchers and theorists whose work was consulted in order to prepare this document--base their conviction on personal observation and on the many research studies linking early childhood programs to desirable outcomes. These outcomes will be described in detail in a later section of this report.

It is important to note, however, that some educators, such as Elkind (1988), Katz (1987), Zigler (1986), and representatives of the National Association for the Education of Young Children (1986) warn against too much formal, highly structured education for very young children. These and other writers have called attention to three major objections to school-based programs. As summarized by Katz, these objections include:

- Such programs, because they are to be conducted in schools normally serving elementary-age children, will inevitably adopt formal academic teaching methods that early childhood specialists generally consider developmentally inappropriate for under-six-year-olds.

- Research reporting positive long-term benefits of early education programs is based on the kind of high quality of staff and program implementation unlikely to be duplicated in most school districts.

- Others...cite the special risks of public school programs for young black children, suggesting that such children need comprehensive programs that include health, nutrition, social services, and parent involvement, as well as informal curriculum/methods. (p.2)

In addition, writers such as Herman (1984) and Puleo (1988) call attention to the issues surrounding the half-day/full-day kindergarten controversy. They note that some educators and researchers feel that the additional hours are too fatiguing for young children and that, in any case, increasing allocated time does not necessarily enhance program quality.

Given this array of assertions and reservations about preschool and kindergarten programs, it is important to examine what well-designed research studies reveal about the long- and short-term effects of early childhood education.

It is also important to determine whether different effects are produced by different models for early childhood programs--to determine, for example, whether didactic, teacher-directed programs or less-structured, "discovery" models produce superior cognitive and behavioral outcomes. Finally, we need to determine whether different populations of students respond differently to early childhood education in general or to particular program models.

The Effective Schooling Research

The relationship of the early childhood education research to the general effective schooling research is also of interest to teachers, administrators, theorists, and researchers. The effective schooling research base developed over the past two decades tells us a great deal about what school and classroom practices are effective for students in general.

The series of topical synthesis documents of which this report is a part examines particular topic areas against the backdrop of the general effective schooling research to determine points of congruence and identify any areas where the general and specific bodies of research do not match.

To achieve this, the present report invokes the general effective schooling research cited in *Effective Schooling Practices: A Research Synthesis* (Northwest Regional Educatonal Laboratory 1984). In reviewing the many research findings cited in this document, it is important to remember that they did not, for the most part, emerge from studies conducted with children younger that first graders. Many of these studies are therefore not applicable to these very young children, because the settings and treatments employed in them represent what Katz described above as "formal academic teaching methods that early childhood specialists generally consider developmentally inappropriate for under-six-year-olds." (1987, p. 2)

There are, nevertheless, several points of congruence between the two literatures, and these will be noted following a discussion of the research on early childhood education.

The Early Childhood Education Research

We are concerned here with research conducted with children three, four, and five years old--the ages which are the focus of most preschool and kindergarten programs. Thus, programs and treatments conducted with infants and toddlers are excluded from the analysis, as are those custodial care arrangements not intended to promote children's general development or foster familiarity with academic activities. In addition, we need to point out that the focus here is the *general* early childhood education research; we have not conducted a detailed analysis of the research on special programs for handicapped children.

Twenty-eight research documents were reviewed in preparation for this report. Eighteen were studies, eight were reviews, and two reported the results of both a study and a review effort. Seventeen reported the results of research conducted with preschool children, six concerned research with kindergarteners, two reported on research with both groups, and three had to do with research with these plus either younger or older children. Many of the studies had a longitudinal design, and the majority of the studies and reviews were concerned with economically disadvantaged, urban, largely black populations.

About half the studies and reviews looked at the effects of preschool or kindergarten in general on the cognitive and affective development of participants. The rest were concerned with specific components within the context of preschool or kindergarten, such as the effects of parent involvement in early childhood programs and the differential effects of curriculum models. Many outcome areas were examined, particularly the effects of early childhood programs on IQ, achievement, incidence of grade retentions, and incidence of referrals for remedial or special education.

The Effects of Preschool

The early studies and evaluations of Head Start programs produced a finding that educators and researchers of the 1960s and 1970s found disheartening: that while impressive cognitive gains result from preschool participation, these gains level off and, in most cases, completely "wash out" by the end of second grade. That is, before the end of the primary grades, there are no longer any IQ or achievement differences between children who had attended preschool programs and demographically similar children who had not.

Many writers, however, have pointed out that this convergence of scores for preschool participants and nonparticipants is to be expected. "We simply cannot," notes Zigler (1986), "inoculate children in one year of preschool against the ravages of a life of deprivation." Thus, the federally funded Follow Through program for primary children was developed to help them maintain and increase the gains they had made as preschoolers.

Meanwhile, other research was being conducted regarding Head Start and other preschool programs, and attention began to shift from the limited focus on the IQ scores of preschool "graduates" to other cognitive measures and, particularly, to noncognitive outcomes, both short-term and long-term.

Short-term Benefits

Research has established a variety of short-term benefits associated with disadvantaged children's preschool attendance. As noted above, IQ and achievement scores increase dramatically (Berrueta-Clement, et al. 1985; Consortium for Longitudinal Studies 1983; Illinois State Board of Education 1985; Irvine 1982; Miller and Dyer 1975; Schweinhart 1985; Bronson, et al. 1985). In addition, Bronson, et al. found preschool graduates to exhibit better task completion and more cooperative interaction with peers.

Of the various curriculum models used in preschool programs, the greatest short-term benefits are obtained when children participate in so-called "didactic" programs--programs which have a pre-academic focus, in which the teacher selects and directs the majority of the classroom activities, and in which there is a high degree of structure (McKey, et al. 1985; Powell 1986; Schweinhart, et al. 1986; Huston-Stein, et al. 1977).

Long-term Benefits

After the first wave of research which cast doubt on the long-term value of preschool programs for economically disadvantaged children, researchers and early childhood specialists began to question the wisdom of using only cognitive measures--and particularly IQ scores--as the indicator of program success. The 1985 Illinois State Board of Education review states that:

> ...growing reservations about the validity and limitations of using IQ as predictor and sole indicator of academic achievement led to the inclusion of scholastic achievement, scholastic placement, noncognitive development, and social responsibility as other indications of effectiveness. (p. 16)

Many researchers have found that, like IQ differences, the majority of achievement differences between preschool participants and nonparticipants disappear by the middle of the primary years. Other researchers and reviewers, however, such as Lazar and Darlington (1982), Gray, et al. (1982) and the Illinois State Board of Education (1985) report that cognitive gains did persist beyond the primary years among the disadvantaged student populations with which they were concerned.

It is in the noncognitive realm, however, that the greatest benefits of preschool experience occur. Longitudinal studies, some of which have followed preschool graduates all the way into adulthood, have identified many positive and significant relationships between preschool participation and task-related, social, and attitudinal outcomes. According to the researchers and reviewers whose work was consulted in preparation for this report, preschool graduates outshine nonparticipants in the following areas:

- **Fewer referrals for remedial classes or special education**. Preschool graduates were more likely to remain in regular classes throughout their public school years (Berrueta-Clement, et al. 1985; Consortium for Longitudinal Studies 1983; Featherstone 1986; Gray, et al. 1982; Illinois State Board of Education 1985; Irvine 1982; Lazar and Darlington 1982; Schweinhart 1985; Stallings and Stipek 1986; Powell 1986).

- **Fewer retentions.** Preschool graduates were less likely to repeat grades (Berrueta-Clement, et al. 1985; Consortium for Longitudinal Studies 1983; Gray, et al. 1982; Illinois State Board of Education 1985; Irvine 1982; Lazar and Darlington 1982; Schweinhart 1985; Stallings and Stipek 1986; Powell 1986).

- **Higher grades**. Graduates had fewer failing grades throughout their school years (Berrueta-Clement, et al. 1985; Consortium for Longitudinal Studies 1983; Featherstone 1986; Illinois State Board of Education 1985; Schweinhart 1985).

- **Greater social and emotional maturity**. Those who attended preschool received higher teacher ratings on measures of social and emotional maturity (Berrueta-Clement, et al. 1985; Illinois State Board of Education 1985; Irvine 1982).

- **More frequent high school graduation/GED completion**. Preschool graduates completed high school in greater numbers (Berrueta-Clement, et al. 1985; Consortium for Longitudinal Studies 1983; Featherstone 1986; Illinois State Board of Education 1985; Schweinhart 1985).

- **Greater academic motivation, on-task behavior, capacity for independent work, and time spent on homework**. Preschool participants were rated higher than nonparticipants on these measures (Bronson, et al. 1985; Illinois State Board of Education 1985; Irvine 1982; Lazar and Darlington 1982; Schweinhart 1985; Stallings and Stipek 1986; Consortium for Longitudinal Studies; Berrueta-Clement, et al. 1985; Miller and Dyer 1975).

- **Lower incidence of absenteeism/ detentions.** Graduates had lower incidences of absenteeism and detentions (Illinois State Board of Education 1985).

- **Better attitudes toward school**. Preschool graduates had much higher scores on measures of attitude toward school and

toward particular subject areas (Berrueta-Clement, et al. 1985; Consortium for Longitudinal Studies 1983; Lazar and Darlington 1982; Miller and Dyer 1975).

- **Better self-esteem, greater internal locus of control**. Those who attended preschool had higher scores on self-esteem and locus of control measures than did those who did not attend preschool (Berrueta-Clement, et al. 1985; Consortium for Longitudinal Studies; Illinois State Board of Education 1985).

- **Lower incidence of illegitimate pregnancy, drug abuse, and delinquent acts**. Older students who had attended preschool as small children had lower incidences of these behaviors, according to self-reports (Featherstone 1986; Stallings and Stipek 1986; Consortium for Longitudinal Studies 1983; Berrueta-Clement 1985; Powell 1986; Schweinhart, et al. 1986; Gersten 1986).

- **More sports participation**. Preschool graduates were more likely to engage in school-sponsored sports (Powell 1986; Gray, et al. 1982).

- **Higher future aspirations, more postsecondary education**. Preschool graduates had higher aspirations for their futures than nonparticipants and were more likely to enroll in postsecondary programs (Featherstone 1986; Consortium for Longitudinal Studies; Berrueta-Clement, et al. 1985; Schweinhart 1985; Lazar and Darlington; Stallings and Stipek 1986).

Once out of school, young people who had attended preschool continued to make a better showing in life than those who had not. They were found to have:

- **Higher employment rates and better earnings and, correspondingly, a lower incidence of dependence on welfare** (Berrueta-Clement, et al. 1985; Consortium for Longitudinal Studies 1983; Gray, et al. 1982; Illinois State Board of Education 1985; Irvine 1982; Lazar and Darlington 1982; Schweinhart 1985; Stallings and Stipek 1986).

- **Fewer arrests and antisocial acts** (Berrueta-Clement, et al. 1985; Consortium for Longitudinal Studies 1983; Featherstone 1986; Irvine 1982; Lazar and Darlington 1982).

- **Better relationships with family members, a higher incidence of volunteer work, and more frequent church attendance** (Berrueta-Clement, et al. 1985; Lazar and Darlington 1982).

While parents' reactions to their children's preschool experience is not a major focus of this report, it is well worth noting that some researchers have compared the attitudes of parents whose children attended preschool with those whose children did not. These researchers found that parents of preschool graduates:

- **Had better attitudes towards their children's schooling** (Illinois State Board of Education 1985; Lazar and Darlington 1982).

- **Had higher expectations for their children's learning and greater satisfaction with their children's achievements** (Consortium for Longitudinal Studies 1983; Featherstone 1986).

- **Contacted teachers more often, even though their children had fewer school problems than children who had not been to preschool** (Featherstone 1986).

Preschool attendance and finishing high school? Staying out of trouble with the law? Attending church! While the relationship between even very good preschool programs and these much later events may seem very tenuous, several of the researchers and reviewers in this area have posited causal models to explain such relationships. The general theme of these models is that good early experiences can set in motion a chain of events that pervades the child's life through high school and beyond, increasing the quality of his/her life experiences along the way. One such model is offered by Berrueta-Clement, et al. (1985), who summarize its workings as follows:

> ...the causal model confirms that preschool education provides poor children with a "head start" both intellectually and socially. It suggests that the initial effect of preschool on intellectual performance generates long-term effects through its intermediate effects on scholastic achievement directly, and on commitment to schooling and scholastic placement, which indirectly affect scholastic achievement. These intermediate effects are important in their own right—increasing subjects' maturity, reducing their need for special education services, enhancing their scholastic achievement, and eventually helping them to stay in school longer. Finally, the effects of preschool have extended beyond school into the adult world as these young people have found more employment and have experienced less involvement in delinquent activities than their no-preschool counterparts. (p. 267)

Effects on Different Student Populations

As noted above, the majority of the preschool education research has been conducted with economically disadvantaged populations. The findings cited previously make clear that these children benefit greatly from preschool educational experiences. We also know that early childhood education is very beneficial for handicapped children (Casto and Mastropieri 1986), and educational literature abounds with stories of the positive effects of the early stimulation and learning opportunities offered to those we regard as gifted and talented.

What about middle class children? A 1985 review effort conducted by the Illinois State Board of Education included data on both low-income and middle class preschoolers. After noting that the youngsters from low-income homes benefitted most from preschool participation, the reviewers stated that preschool may enhance the development and learning of middle class children as well. "There are some initial findings that socioeconomically advantaged children, although generally not considered at risk for educational and social failure, may nevertheless benefit from preschool education." (p. 17) Most investigators seem to agree that more research would be required to determine the effects of preschool experiences in the lives of these children.

Some investigators (Illinois State Board of Education 1985; Consortium for Longitudinal Studies 1983) have sought to determine whether preschool participation affects students differentially based on factors such as IQ, sex, birth order, one- or two-parent family composition, whether the mother works outside the home, etc. Most studies have found no differences, and the few studies which did note some differences did not find significant ones.

Differential Effects of Program Models and Teaching Practices

We have been discussing the effects of preschool experiences in general on the cognitive and noncognitive development of participants. Some investigators have taken this analysis a step further, asking whether some approaches to working with preschool children might be more beneficial than others. Findings are cited below, organized by the kind of inquiries made by various researchers.

The importance of health and social services. Bronson, et al. (1985), the Consortium for Longitudinal Studies (1983), Gray, et al. (1982), and others have found that health and social services for disadvantaged children and their families are an essential component of successful preschool programs. They remind us that the deficits experienced by these children extend beyond those that can be remediated in the classroom, and that these physical and social service needs must be met if educational services are to have significant impact.

Parent education and involvement. Virtually all successful programs have parent education and parent involvement components, and nearly all investigators cite these as critical to program success. Cotton and Green's 1988 review of the parent involvement research revealed the powerful effects of such involvement on children's learning and the

learning of very young children in particular. The early childhood education research underscores the importance of parent participation, including the finding that the more intensively parents are involved, the greater are the cognitive and noncognitive benefits to their children (Bronfenbrenner 1974; Irvine 1982). As Bronson, et al. (1985) summarized,

> Education and support services to parents of young children coupled with early education programs for the children should be recognized as an essential part of high quality elementary school curriculum. Early detection and prevention of learning difficulties is effective, and less expensive in the long run, than remediation. (p. 254)

Programs focusing on language development. McKey, et al. (1985), Chicago Public Schools (1985), Smothergill, et al. (1971), and others have found that disadvantaged children exhibit greater long-term achievement when the preschool programs they attend concentrate on language development activities.

Class size. Most investigators who have examined the discrete effects of different program elements have identified small class size (or, at any rate, a small student-teacher ratio) as vital to quality programs. While different ratios are cited, most researchers seem to agree that the student-teacher ratio should not go above 16:1, and many favor a 10:1 ratio for four-year-olds. A 1985 report by the Chicago Public Schools found that children performed better in a small half-day kindergarten class (16:1) than in an all-day class with a 28:1 ratio.

Like the general class size research (summarized in Robinson and Wittebols, 1986), the early childhood education research indicates that smaller class size benefits children by allowing for more individual attention and making possible teaching practices which are not feasible in larger groups.

Program continuity. Efforts made to increase program continuity also increase program effectiveness (Chicago Public Schools 1985; Irvine, et al. 1980; Illinois State Board of Education 1985; McKey, et al. 1985, Gray, et al. 1982). Careful sequencing of materials and activities, based on knowledge of early child development, is a key factor in program success. Investigators have also noted improvements in student outcomes when preschool, kindergarten, and first grade teachers work together to insure program continuity from year to year. As Irvine, et al. (1980) state, "If there is a concerted effort to build on the Pre K experience as the children progress through kindergarten and first grade, the positive effects of Pre K can be maintained." (p. 7)

Inservice for teachers. The general research on the effects of teacher inservice tells us that professional development for teachers pays off in terms of improved student outcomes. Irvine, et al. (1980), Chicago Public Schools (1985) and others have identified benefits when inservice for early childhood specialists focuses directly on early child development, ways to achieve program continuity, and ways to involve and work with parents.

Different curriculum models. Should young children receive instruction in school-related skills in the spirit of fostering familiarity with academic activities, or should attention to academic skill building be left for later in their school experience? Should they select most of their own activities or should these be teacher selected and directed?

This matter of the relative merits of different program models is probably the most controversial issue in the early childhood education field. Considerable research effort has been put forth to determine whether young children benefit more from programmed learning programs (such as Distar), open framework programs (such as High/Scope), child-centered programs (a traditional nursery school approach), or some other program model.

Some researchers have compared different preschool program approaches and found one or another of them to be superior to others. For example, Huston-Stein, et al. (1977) found that less-structured programs with more child-selected activities to be more beneficial than other approaches in fostering imagination, task persistence, and independence. Other investigators have found, not surprisingly, that more didactic, academically oriented programs produce greater short-term

cognitive gains than other models (Schweinhart, et al. 1986; Gersten 1986; Huston-Stein, et al. 1977). On the other hand, Schweinhart, et al. (1986) found that teenagers who had participated in didactic programs as small children engaged in far more negative social behavior when they grew older.

While these findings need to be considered, a more frequently drawn conclusion of the comparative research is that all of these approaches can be effective if they include the previously cited elements which seem critical to program success. Some researchers (Powell 1986; Miller and Dyer 1975) have identified differential effects of program models based on subject area and sex of participant, but most investigators have determined that the major preschool curriculum models can all confer cognitive and noncognitive benefits if they provide inservice for teachers and aides, involve parents, keep to small class size, and maintain program continuity. At the conclusion of their investigations of different approaches, Lazar and Darlington (1982) state:

> The results indicate that high quality programs with careful design and supervision, using a variety of strategies, can be effective, and that these various strategies can be effective for different types of low-income children. This gives program planners the flexibility to be responsive to local needs and parental inputs in designing programs which build on strengths and abilities of the families they serve. (p. 65)

Half-Day Versus Full-Day Kindergarten. What about the half-day/full-day kindergarten issue? Full-day kindergarten programs were originally developed to increase the school readiness of disadvantaged children, thus improving their chances for success throughout their school years. But do full-day programs actually achieve this goal?

Most researchers have found that disadvantaged children do reap greater short-term benefits from full-day programs than from traditional half-day kindergarten (Chicago Public Schools 1985; Herman 1984; Nieman and Gastright 1981; Karweit 1988). Findings are less conclusive regarding long-term benefits, although the evidence suggests that full-day kindergarten graduates experience many of the same benefits as those who attend preschool. Indeed, Neiman and Gastright found that disadvantaged children who attend preschool *and* full-day kindergarten outperformed their counterparts who did not attend preschool and attended only half-day kindergarten.

Congruence Between the Early Childhood Education Research and the Effective Schooling Research

The findings regarding effective practices in early childhood programs are congruent with those effective schooling research findings that have relevance for young children. Both bodies of literature identify the following as critical components of effective schooling:

- Matching instructional resources and teaching activities to the developmental levels of the children
- Holding high expectations for all children and taking steps to insure that they will be prepared for success at their next level of education
- Making sure that activities flow from previous activities and learnings and into future ones; explaining these connections to the children as part of the activity
- Previewing lessons, giving clear directions, and checking student understanding
- Allowing children plenty of opportunity for guided and independent practice with new concepts and skills
- Monitoring student activities and providing help as needed
- Communicating warmth and caring to children
- Building good continuity across grade levels and making sure teachers know where their curriculum fits into the overall school curriculum

- Allocating and making use of time in ways that meet program goals
- Providing staff development opportunities with an emphasis upon skill building
- Engaging the involvement of parents, providing them an array of involvement opportunities, and building teachers' capacity to work effectively with parents

Well-designed educational programs for young, economically disadvantaged children can clearly affect their lives for the better, both during their school years and beyond. These programs also enhance the development of other children, particularly the handicapped. Economic analyses indicate that providing such programs is an excellent investment in the future of our society (Barnett and Escobar, 1987). All that is required is the willingness to take action, as noted by the Consortium for Longitudinal Studies in its 1983 report:

> Perhaps, if we are sufficiently insistent, our society will one day be willing to make long-range investments in our children and in the quest for ways to improve their ability to succeed in life. (p. 466)

Key References

Barnett, W.S., and Escobar, C.M. "The Economics of Early Intervention: A Review." *Review of Educational Research* 57(1987): 387-414.

Reviews the empirical evidence regarding the cost-benefit relationship of early childhood education. Identifies the structure, participants, and student outcomes of a variety of preschool programs. The economic benefits of early childhood programs have not been extensively nor rigorously studied, but a few studies do provide strong evidence that early intervention for disadvantaged children can be a sound economic investment.

Berrueta-Clement, J.R.; Barnett, W.S.; and Weikart, D.P. "Changed Lives—The Effects of the Perry Preschool Program on Youths Through Age 19." In *Education Studies Review Annual*, Volume 10, edited by L.H. Aiken and B.H. Kehrer. Beverly Hills, CA: SAGE Publications, 1985, 257-279.

Presents findings from the large-scale longitudinal study of the effects of the Perry Preschool Program in Ypsilanti, Michigan. Reports findings in many school-related and nonschool areas and concludes that the program has been extremely effective in improving participants' life experiences. Includes an economic analysis of the program.

Bronfenbrenner, U. *A Report on Longitudinal Evaluations of Preschool Programs, Vol. II: Is Early Intervention Effective?* Washington, D.C.: Office of Child Development, DHEW, 1974. (ED 093 501)

Reviews twelve studies on the effects of early intervention with children ranging in age from one to six. Children were found to show cognitive gains, but these declined progressively after program completion. The children from the most deprived backgrounds showed the smallest gains. Home intervention appeared crucial to program success for very young children.

Bronson, M.B.; Pierson, D.E.; and Tivnan, T. "The Effects of Early Education on Children's Competence in Elementary School." In *Evaluation Studies Review Annual*, Vol. 10, edited by L.H. Aiken and B.H. Kehrer. Beverly Hills, CA: SAGE Publications, 1985, 243-256.

Investigates the effects of the Brookline Early Education Project (BEEP) on the classroom behavior of a socioeconomically heterogeneous population of children. Experimental children outperformed controls on observational measures of mastery skills, social skills, and use of time.

Casto, G., and Mastropieri, M.A. "The Efficacy of Early Intervention Programs: A Meta-Analysis." *Exceptional Children* 52(1986): 417-424.

Reviews 74 research studies which have investigated the effectiveness of early intervention with handicapped preschoolers. Such intervention was found to be extremely beneficial; and longer, more intensive programs were found to be most benefical.

Chicago Public Schools. *Meeting the National Mandate: Chicago's Government Funded Kindergarten Programs.* Chicago, IL: Chicago Public Schools, 1985.

Reports findings from an evaluation of 110 kindergarten programs in the Chicago Public Schools during 1983-84. Most participants were disadvantaged black children. The report discusses the effects of class size; compares full- and half-day programs; and discusses inservice, parent involvement, time use, teacher perceptions, and student achievement.

Consortium for Longitudinal Studies. *As the Twig is Bent...Lasting Effects of Preschool Programs.* Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers, 1983.

Investigates the long-term effects of participation in a variety of preschool programs. Effects of individual programs are accompanied by an analysis across a dozen different preschool program studies. Preschool was found to produce lasting cognitive and affective benefits.

Cotton, K., and Green, K.R. *Parent Involvement in Education.* Portland, OR: Northwest Regional Educational Laboratory, 1988 (draft).

Reviews research on the effects of parent involvement on the cognitive and noncognitive development of students of various ages and socioeconomic backgrounds. Concludes that parent involvement is extremely beneficial and the more extensively parents are involved, the more positive are the effects on students and families.

Featherstone, H. "Preschool: It Does Make a Difference." *Principal* 65(1986): 16-17.

Reviews several recent studies which focused on the short- and long-term effects of preschool participation on cognitive and social outcomes. While corroborating the findings of previous research about IQ and achievement test scores (preschool boosts these scores only temporarily), recent researchers have identified an array of cognitive and social benefits produced by preschool participation. Benefical effects on parents are also noted.

Gersten, R. "Response to 'Consequences of Three Preschool Curriculum Models through Age 15.'" *Early Childhood Research Quarterly* 1(1986): 293-302.

Critiques the methods used in a recent longitudinal study of preschool effects and the conclusions drawn by the authors of that study. The previous study, which indicated that Distar preschoolers had more social problems later in life than other students, is criticized in this article on grounds of small sample size, misleading criteria for statistical significance, the extensive use of self-reports, etc.

Gray, S.W.; Ramsey, B.K.; and Klaus, R.A. *From 3 to 20: The Early Training Project.* Baltimore, MD: University Park Press, 1982.

Describes the project and offers findings from a study of its long-term effects. The project served low-income children and was designed to enhance perceptual/cognitive and language development through the use of carefully sequenced materials and activities. Project children outperformed controls on intellectual performance through grade four and surpassed them on measures such as special education referrals and retentions.

Herman, B.E. *The Case for the All-Day Kindergarten*. PDK Fastback 205. Bloomington, IN: Phi Delta Kappa Educational Foundation, 1984.

Presents the issues surrounding the all-day versus half-day kindergarten controversy and cites research comparing the two approaches. Describes in detail one all-day program, discusses typical learning and emotional problems encountered in the all-day setting, and provides a checklist for establishing an all-day program.

Huston-Stein, A.; Friedrich-Cofer, L.; and Susman, E.J. "The Relation of Classroom Structure to Social Behavior, Imaginative Play, and Self-Regulation of Economically Disadvantaged Children." *Child Development* 48(1977): 908-916.

Compares the effects produced when preschool children are in highly structured, adult-directed classes as opposed to those produced by less structured classes with more child selected activities. Children in 13 urban Head Start classes participated. Children in low-structure classes engaged in more prosocial behavior with peers, more imaginative play, more aggressive behavior, and more independent task persistence. High-structure children were more attentive and obedient.

Illinois State Board of Education. *Effectiveness of Early Childhood Education Programs: A Review of Research*. Springfield, IL: Department of Planning, Research, and Evaluation, 1985. (ED 260 825)

Reviews research and evaluation studies of early childhood programs. Participants in preschool programs had higher IQs and achievement levels than nonparticipants, and some of these beneficial effects persisted into the teenage years. Participants also outshone their counterparts on noncognitive measures.

Irvine, D.J. *Evaluation of the New York State Experimental Prekindergarten Program*. Albany, NY: New York State Department of Education, 1982. (ED 217 980)

Reports the results of a longitudinal study of the effects of an experimental prekindergarten program on the cognitive and noncognitive development of participating children. Also reports the results of a substudy of the effectiveness of providing staff development to enhance program continuity.

Irvine, D.; Flint, D.; Hick, T.L.; Horan, M.D.; and Kukuk, S.E. *Continuity of Learning Experiences: A Key to Long-Range Effects of Prekindergarten*. Albany, NY: New York State Education Department, 1980.

Investigates the effects of increased continuity in early childhood education on the general reasoning ability and knowledge of verbal concepts of program children. Staff in seven districts received training designed to increase continuity among the school's preschool, kindergarten and first grade programs. Experimental children outperformed controls.

Karweit, N. *Effective Elementary Programs and Practices for At-Risk Students*. Baltimore, MD: Center for Research on Elementary and Middle Schools, Johns Hopkins University, 1988.

Discusses research on programs and practices for preschool, kindergarten and elementary level children and looks at the implications of research findings for program development for disadvantaged children.

Lazar, I., and Darlington, R. *Lasting Effects of Early Education: A Report from the Consortium for Longitudinal Studies*. Monographs of the Society for Research in Child Development, Serial No. 195, Vol. 47, Nos. 2-3, 1982.

Investigates the long-term effects of early childhood education on disadvantaged children. Twelve investigators, who had designed and conducted programs in the 1960s, pooled their

original data and conducted a collaborative follow-up of the original subjects, then ages 9-19. Descriptions of each program, evaluation results, and overall effects are included.

McKey, R.H.; Condelli, L.; Ganson, H.; Barrett, B.J.; McConkey, C.; and Planz, M.C. *The Impact of Head Start on Children, Families, and Communities.* Final Report of the Head Start Evaluation, Synthesis and Utilization Project. Washington, DC: CSR, Inc., 1985. (ED 263 984)

Applies the statistical techniques of meta-analysis and other methodologies to virtually all existing published and unpublished Head Start research. Corroborates previous research on preschool programs regarding declining achievement benefits, but notes that former Head Starters are less likely to repeat grades or to be placed in special classes than non-Head Starters. Presents extensive information regarding the impact of Head Start on children's health, on families, and on communities.

Miller, L.B., and Dyer, J.L. *Four Preschool Programs: Their Dimensions and Effects.* Monographs of the Society for Research in Child Development, Serial No. 162, Vol. 40, Nos. 5-6, 1975.

Reports results from an experimental comparison of four prekindergarten programs and a three-year follow-up through second grade. Programs included: Montessori, Traditional (enrichment), Bereiter-Engelemann, and Darcee. All programs produced IQ and achievement gains, but these did not persist over time. Noncognitive effects detectable after four years were in the areas of motivation and attitudes.

Nieman, R.H., and Gastright, J.F. "The Long-Term Effects of Title I Preschool and All-Day Kindergarten." *Phi Delta Kappan* 63(1981): 184-185.

Compares the fourth and eighth grade school performance of children who had attended both preschool and all-day kindergarten with the performance of those who did not attend preschool and attended kindergarten only half-days. The preschool/all-day kindergarten group scored higher in both math and reading at both the fourth and eighth grade levels. They also repeated fewer grades and experienced fewer referrals to special classes.

Northwest Regional Educational Laboratory. *Effective Schooling Practices: A Research Synthesis.* Portland, OR: NWREL, 1984.

Presents, in list form, the classroom, school, and district characteristics which research has found to be positively related to student achievement and behavioral outcomes. Draws from nearly 300 primary and secondary sources.

Powell, D.R. "Effects of Program Models and Teaching Practices." *Young Children* 41(1986): 60-67.

Reviews findings of selected studies on the effects of different types of preschool programs and teaching practices on children's later academic and social behavior. Study findings do not permit firm, general conclusions about the relative effectiveness of different approaches, but there are indications of patterns and of directions for further research.

Puleo, V.T. "A Review and Critique of Research on Full-Day Kindergarten." The *Elementary School Journal* 88(1988): 427-439.

Identifies the many methodological flaws and other limitations of the full-day/half-day kindergarten research and cites findings emerging from this research. Full-day kindergarten was found to produce greater short-term and long-term gains, especially for disadvantaged children. Reducing class size was more effective than extending the kindergarten day. No differences were noted for noncognitive outcomes.

Schweinhart, L.J. *The Preschool Challenge*. High/Scope Early Childhood Policy Papers, No. 4. Ypsilanti, MI: High/Scope Educational Research Foundation, 1985.

Discusses the high percentage of preschool-age children who are living in poverty and the likelihood that these children will remain poor all their lives without intervention. Reviews research on the effectiveness of early childhood programs in combatting the negative academic and social consequences of poverty.

Schweinhart, L.J.; Weikart, D.P.; and Larner, M.B. "Consequences of Three Preschool Curriculum Models Through Age 15." *Early Childhood Research Quarterly* (1986): 15-45.

Compares the effects of three preschool curricula—the High/Scope model, the Distar model, and a traditional nursery school model—on various factors in the lives of previous participants at the age of 15. Programs were roughly equal in producing IQ and achievement gains. Social and behavioral outcomes greatly favored High/Scope and traditional nursery school over Distar.

Smothergill, N.L.; Olson, F.; and Moore, S.G. "The Effects of Manipulation of Teacher Communication Style in the Preschool." *Child Development* 42(1971): 1229-1239.

Compares the effects of two teaching styles on the classroom behavior of 12 preschoolers. Half experienced an elaborative style in which teachers gave elaborate task information and encouraged children's comments and involvement, while the other half were given only necessary task information and no encouragement. The elaborative group outperformed their peers on verbal tasks; no differences were noted in nonverbal tasks.

Stallings, J.A.; and Stipek, D. "Research on Early Childhood and Elementary School Teaching Programs." *In Handbook of Research on Teaching*. Third Ed. Edited by M.C. Wittrock. New York: Macmillan Publishing Co., 1986.

Reviews several large-scale longitudinal studies on the cognitive and affective outcomes of preschool programs. Programs utilizing different models and teaching strategies were found to be effective, with their participants significantly outperforming controls on measures of IQ, achievement, dropout rates, retention, referrals to special classes, teen pregnancies, employment, arrests, etc. The chapter also reviews elementary level programs and examines in detail the techniques of mastery learning and cooperative learning.

Other References

Brown, B. "Head Start: How Research Changed Public Policy." *Young Children* 40(1985): 9-13.

Traces the history of research conducted on the effects of Head Start programs and the way research results—and interpretations of them—have influenced Head Start policy and funding.

Cheever, D.S., Jr., and Ryder, A.E. "Quality: The Key to Successful Programs." *Principal* 6(1986): 18-21.

Discusses the benefits to individuals and to society of early childhood education programs, and identifies components of high-quality programs. Provides an overview of some of the research on the cognitive, affective, and economic outcomes of preschool programs.

Council of Chief State School Officers. *A Guide for State Action: Early Childhood and Family Education*. Washington, DC: CESSO, November 1988.

Describes current early childhood needs and provisions in various states and in the nation as a whole and offers recommendations for the establishment of programs for young children and their families.

Cowles, M. "Early Childhood Curriculum." *Acting on What We Know: Developing Effective Programs for Young Children*, edited by K.J. Swick, and K. Castle. Little Rock, AK: Southern Association on Children Under Six, 1985. (ED 262 865)

Identifies the beneficial effects of high-quality early childhood education programs and specifies the components of effective programs.

Day, B.D. "What's Happening in Early Childhood Programs Across the United States." In C. Warger (ed.) *A Resource Guide to Public School Early Childhood Programs*. Alexandria, VA: Association for Supervision and Curriculum Development, 1988.

Identifies trends in early childhood education programming and includes data on state initiatives regarding preschool programs.

Elkind, D. "Educating the Very Young: A Call for Clear Thinking." *NEA Today* 6(1988): 22-27.

Discusses the role of early childhood education in society, presents evidence regarding the appropriate instructional content of preschool programs, examines the role of early childhood education in the experience of disadvantaged children, reviews program models, and discusses the role of the public schools in providing preschool programs.

Glazer, J. "Kindergarten and Early Education: Issues and Problems." *Childhood Education* 62(1985): 13-18.

Reviews research on the effects of preschool and kindergarten, offers recommendations, and suggests areas for further research to clarify areas where research findings are inconclusive.

Katz, L.G. *Current Issues in Early Childhood Education*. Champaign, IL: ERIC Clearinghouse on Early Childhood Education, 1987. (ED 281 908)

Examines issues raised in recent early childhood education research and other literature. Confirms the effectiveness of early childhood programs in general and discusses controversies such as the advisability of schooling for four-year-olds and the most effective preschool and kindergarten models.

Meisels, S.J. "The Efficacy of Early Intervention: Why Are We Still Asking This Question?" *Topics in Early Childhood Special Education* 5(1985): 1-11.

Speculates that uncertainty about the efficacy of early intervention comes from a lack of clarity regarding four basic assumptions of intervention programs: (1) theory of human development, (2) specific interventions, (3) how change is measured, and (4) procedures for selecting participants.

National Association for the Education of Young Children. *Good Teaching Practices for 4- and 5-Year-Olds*. Washington, DC: NAEYC, 1986.

Describes appropriate and inappropriate practices used with children in preschool settings. Includes a bibliography organized by developmental category.

NASBE Task Force on Early Childhood Education. *Right from the Start: The Report of the NASBE Task Force on Early Childhood Education*. Alexandria, VA: National Association of State Boards of Education, 1988.

Recommends that early childhood units be established in elementary schools and that public schools develop partnerships with other ECE programs and community agencies.

National Black Child Development Institute. *Safeguards: Guidelines for Establishing Programs for Four-Year-Olds in the Public Schools*. Washington, DC: The National Black Child Development Institute, 1987.

Identifies and elaborates on ten preconditions for effective public school preschool education, particularly for black children.

Robinson, G.E., and Wittebols, J.H. *Class Size Research: A Related Cluster Analysis. ERS Research Brief.* Arlington, VA: Educational Research Service, Inc., 1986.

Summarizes 100 research studies conducted between 1950 and 1985 and uses a clustering approach to group and regroup the studies into 18 major areas of concern. Conclusions are offered for each of the 18 areas.

Schweinhart, L.J. *Early Childhood Development Programs in the Eighties: The National Picture.* Ypsilanti, MI: High/Scope Early Childhood Policy Papers, No. 1, 1985. (ED 262 902)

Reports on the status of early childhood care and education in the U.S. in the 1980s, with a special focus on federally funded programs. A discussion of preprimary populations and program enrollment is followed by a discussion of federal and state ECE programs.

Schweinhart, L.J., and Weikart, D.P. "Evidence that Good Early Childhood Programs Work." *Phi Delta Kappan* 66(1985): 545-551.

Reports the findings of seven longitudinal studies on the effects of preschool programs on the later cognitive and noncognitive performance of graduates aged 9-21. Findings include that graduates experience improved intellectual performance during early childhood, better scholastic placement and achievement in elementary school, and a lower rate of delinquency and higher rates of high school graduation and employment by age 19.

Schweinhart, L.J. *When the Buck Stops Here: What it Takes to Run Good Early Childhood Programs.* Presentation at the Annual Conference of the National Association of State Boards of Education, 1987.

Identifies critical components in high-quality early childhood education programs and provides guildelines for achieving these. Includes a questionnaire for users to determine program quality.

Schweinhart, L.J.; Berrueta-Clement, J.R.; Barrett, W.S.; Epstein, A.S.; and Weikart, D.P. "The Promise of Early Childhood Education." *Phi Delta Kappan* 66(1985): 548-553.

Reviews findings from the Perry Preschool Project Study in Ypsilanti, Michigan and looks at the implications of these findings for early childhood education in general.

Spencer, M., and Baskin, L. *Microcomputers in Early Childhood Education.* Urbana, IL: ERIC Clearinghouse on Elementary and Early Childhood Education, 1983. (ED 227 967)

Presents concepts and offers discussions of topics related to computers and young children, including effects of computer use, computer literacy, CAI, programming, computer art, word processing, and administrative uses.

Verzaro-Lawrence, M. "Early Childhood Education: Issues for a New Decade." *Childhood Education* 57(2): 104-109.

Reviews research from the seventies on the effects of early childhood education programs and identifies future issues of concern to program planners, researchers, and funding agencies.

Zigler, E.F. "Should Four-Year-Olds Be In School?" *Principal* 65(1986): 10-13.

Discusses various aspects of the preschool education issue—beneficial, neutral or harmful; compulsory or elective; formal education or day care. Warns against the notion that early childhood education can undo the harm caused by poverty and deprivation. Advocates in-school day care for young children.

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School Improvement Research Series

Close-Up #5

Classroom Questioning

Kathleen Cotton

Introduction

Articles on the subject of classroom questioning often begin by invoking Socrates. Researchers and other writers concerned with questioning techniques seem to want to remind us that questioning has a long and venerable history as an educational strategy. And indeed, the Socratic method of using questions and answers to challenge assumptions, expose contradictions, and lead to new knowledge and wisdom is an undeniably powerful teaching approach.

In addition to its long history and demonstrated effectiveness, questioning is also of interest to researchers and practitioners because of its widespread use as a contemporary teaching technique. Research indicates that questioning is second only to lecturing in popularity as a teaching method and that classroom teachers spend anywhere from thirty-five to fifty percent of their instructional time conducting questioning sessions.

Definition

A question is any sentence which has an interrogative form or function. In classroom settings, teacher questions are defined as instructional cues or stimuli that convey to students the content elements to be learned and directions for what they are to do and how they are to do it.

The present review focuses on the relationship between teachers' classroom questioning behaviors and a variety of student outcomes, including achievement, retention, and level of student participation. This means that certain other subtopics within the general area of questioning are excluded from the present analysis. It does not deal, for example, with the effects of textual questions or test questions, and it is only incidentally concerned with methods used to impart study skills, including questioning strategies, to students.

What are the purposes of teachers' classroom questions? A variety of purposes emerge from analysis of the literature, including:

- To develop interest and motivate students to become actively involved in lessons
- To evaluate students' preparation and check on homework or seatwork completion
- To develop critical thinking skills and inquiring attitudes
- To review and summarize previous lessons
- To nurture insights by exposing new relationships
- To assess achievement of instructional goals and objectives

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- To stimulate students to pursue knowledge on their own

These purposes are generally pursued in the context of classroom *recitation*, defined as a series of teacher questions, each eliciting a student response and sometimes a teacher reaction to that response. Within these recitations, students follow a series of steps (consciously or unconsciously) in order to produce responses to the questions posed. These steps include:

- Attending to the question
- Deciphering the meaning of the question
- Generating a covert response (i.e., formulating a response in one's mind)
- Generating an overt response; and often
- Revising the response (based on teacher probing or other feedback)

The Research on Classroom Questioning

CHARACTERTISTICS OF THE RESEARCH

Classroom questioning is an extensively researched topic. The high incidence of questioning as a teaching strategy, and its consequent potential for influencing student learning, have led many investigators to examine relationships between questioning methods and student achievement and behavior.

The findings reported in this summary are drawn from thirty-seven research documents. Twenty-one of these are the reports of experimental or correlational studies, thirteen are reviews, one reports the results of both a review and a study, and two are meta-analyses.

The student populations of concern in these documents are:

- Elementary (mostly intermediate) - 18
- Secondary - 4
- The entire K-12 range - 14
- Not specified - 1

The research is concerned with a variety of treatments. By far the largest number of documents—twenty-six—are concerned with the relative effects on student learning produced by questions at higher and lower cognitive levels (discussed below). The subject of eight of the documents is the relationship between teacher wait-time and learning outcomes (also discussed in a later section). Other treatments include:

- Manipulating the placement and timing of questions during lessons - 2
- Using probing, redirection and reinforcement strategies - 3
- Training students in responding to higher cognitive questions, making inferences, etc. - 2
- Training teachers in questioning strategies - 3

The variables are sometimes investigated alone and sometimes in combination with each other or with other variables unrelated to classroom questioning.

The student outcome areas of concern in the research include:

- General achievement - 18
- Reading achievement (usually comprehension) - 5
- Social studies achievement - 3
- Science achievement - 3
- Mathematics achievement - 1
- Retention, as measured by delayed tests - 3
- Level of student engagement/participation - 9
- Cognitive level of responses produced by students - 4
- Student attitutes - 2

RESEARCH FINDINGS

General Findings

Some researchers have conducted general investigations of the role of classroom questioning and have drawn the following conclusions:

- Instruction which includes posing questions during lessons is more effective in producing achievement gains than instruction carried out without questioning students.
- Students perform better on test items previously asked as recitation questions than on items they have not been exposed to before.
- Oral questions posed during classroom recitations are more effective in fostering learning than are written questions.
- Questions which focus student attention on salient elements in the lesson result in better comprehension than questions which do not.

Placement and Timing of Questions

- Asking questions frequently during class discussions is positively related to learning *facts*.
- Increasing the frequency of classroom questions does not enhance the learning of more complex material. (Some researchers have found no relationship; others have found a negative relationship.)
- Posing questions *before* reading and studying material is effective for students who are older, high ability, and/or known to be interested in the subject matter.
- Very young children and poor readers tend to focus only on material that will help them answer questions if these are posed before the lesson is presented.

Cognitive Level of Questions

Should we be asking questions which require literal recall of text content and only very basic reasoning? Or ought we to be posing questions which call for speculative, inferential, and evaluative thinking? Some researchers have designed experiments which examine the effects of questions framed at differing levels of Bloom's Taxonomy of School Learning. These levels, in ascending order of sophistication, are: (1) knowledge, (2) comprehension, (3) application, (4) analysis, (5) synthesis, and (6) evaluation. There are other hierarchies, too, which are used as the basis for structuring comparative studies.

The majority of researchers, however, have conducted more simple comparisons: they have looked at the relative effects on student outcomes produced by what they call higher and lower cognitive questions.

Lower cognitive questions are those which ask the student merely to recall verbatim or in his/her own words material previously read or taught by the teacher. Lower cognitive questions are also referred to in the literature as fact, closed, direct, recall, and knowledge questions.

Higher cognitive questions are defined as those which ask the student to mentally manipulate bits of information previously learned to create an answer or to support an answer with logically reasoned evidence. Higher cognitive questions are also called open-ended, interpretive, evaluative, inquiry, inferential, and synthesis questions.

Research on the relationship between the cognitive level of teachers' questions and the achievement of their students has proved frustrating to many in the field of education, because it has not produced definitive results. Quite a number of research studies have found higher cognitive questions superior to lower ones, many have found the opposite, and still others have found no difference. The same is true of research examining the relationship between the cognitive level of teachers' questions and the cognitive level of students' responses. The conventional wisdom that says, "ask a higher level question, get a higher level answer," does not seem to hold.

It is only when researchers look at the cognitive level of teachers' questions in relation to the subject matter, the students, and the teachers' intent that some meaningful conclusions can be drawn from this body of research. Findings include:

- On the average, during classroom recitations, approximately 60 percent of the questions asked are lower cognitive questions, 20 percent are higher cognitive questions, and 20 percent are procedural.
- Higher cognitive questions are not categorically better than lower cognitive questions in eliciting higher level responses or in promoting learning gains.
- Lower cognitive questions are more effective than higher level questions with young (primary level) children, particularly the disadvantaged.
- Lower cognitive questions are more effective when the teacher's purpose is to impart factual knowledge and assist students in committing this knowledge to memory.
- In settings where a high incidence of lower level questions is appropriate, greater frequency of questions is positively related to student achievement.
- When predominantly lower level questions are used, their level of difficulty should be such that most will elicit correct responses.
- In most classes above the primary grades, a combination of higher and lower cognitive questions is superior to exclusive use of one or the other.
- Students whom teachers perceive as slow or poor learners are asked fewer higher cognitive questions than students perceived as more capable learners.
- Increasing the use of higher cognitive questions (to considerably above the 20 percent incidence noted in most classes) produces superior learning gains for students above the primary grades and particulary for secondary students.
- Simply asking higher cognitive questions does not necessarily lead students to produce higher cognitive responses.
- Teaching students to draw inferences and giving them practice in doing so result in higher cognitive responses and greater learning gains.
- Increases in the use of higher cognitive questions in recitations does not reduce student performance on lower cognitive questions on tests.
- For older students, increases in the use of higher cognitive questions (to 50 percent or more) are positively related to increases in:

  (1) On-task behavior

  (2) Length of student responses

  (3) The number of relevant contributions volunteered by students

  (4) The number of student-to-student interactions

  (5) Student use of complete sentences

  (6) Speculative thinking on the part of students

  (7) Relevant questions posed by students
- For older students, increases in the use of higher cognitive questions (to 50 percent or more) are positively related to increased teacher expectations about children's abilities—particularly the abilities of those students whom teachers have habitually regarded as slow or poor learners.

Wait-Time

Researchers on questioning strategies speak of two kinds of wait-time: "wait-time 1" refers to the amount of time the teacher allows to elapse after he/she has posed a question and before a student begins to speak; and "wait-time 2" refers to the amount of time a teacher waits after a student has stopped speaking before saying anything. The research has focused more on wait-time 1 than wait-time 2, but the following findings apply to both.

Because research has established a positive relationship between the amount of instructional content covered and student achievement, researchers and other educators have recommended that teachers keep up brisk instructional pacing. In this way, the reasoning goes, classes will cover more material, student interest will be maintained, and achievement

levels will be higher. As with the research on the cognitive level of teachers' questions, this wisdom turns out to have limited application. Findings include:

- The average wait-time teachers allow after posing a question is one second or less.
- Students whom teachers perceive as slow or poor learners are given less wait-time than those teachers view as more capable.
- For lower cognitive questions, a wait-time of three seconds is most positively related to achievement, with less success resulting from shorter or longer wait-times.
- There seems to be no wait-time threshold for higher cognitive questions; students seem to become more and more engaged and perform better and better the longer the teacher is willing to wait.
- Increasing wait-time beyond three seconds is positively related to the following student outcomes:
  (1) Improvements in the student achievement
  (2) Improvements in student retention, as measured by delayed tests
  (3) Increases in the number of higher cognitive responses generated by students
  (4) Increases in the length of student responses
  (5) Increases in the number of unsolicited responses
  (6) Decreases in students' failure to respond
  (7) Increases in the amount and quality of evidence students offer to support their inferences
  (8) Increases in contributions by students who do not participate much when wait-time is under three seconds
  (9) Expansion of the variety of responses offered by students
  (10) Decreases in student interruptions
  (11) Increases in student-student interactions
  (12) Increases in the number of questions posed by students
- Increasing wait-time beyond three seconds is positively related to the following teacher outcomes:
  (1) Increases in flexibility of teacher responses, with teachers listening more and engaging students in more discussions
  (2) Increases in teacher expectations regarding students usually thought of as slow
  (3) Expansion of the variety of questions asked by teachers
  (4) Increases in the number of higher cognitive questions asked by teachers.

Relationship Between Increasing the Use of Higher Cognitive Questions and Increasing Wait-Time

The list of benefits produced by increasing higher cognitive questions and the list of benefits resulting from increased wait-time are remarkably similar. In addition, research has shown that the degree of improvement resulting from increases in both higher cognitive questions and wait-time is greater than an increase in either of these variables by itself. Indeed, those who have examined the relationship between these factors tell us that, in a sense, they "cause" one another. That is, the more complex mental operations required by higher cognitive questions call for—and are often found to produce—longer wait-times. And increases in wait-time seem to result in teachers and students carrying out recitations at higher cognitive levels.

Redirection/Probing/Reinforcement

The research on questioning includes investigations into the effects of redirecting questions when initial responses are unsatisfactory or incomplete, probing for more complete responses, and providing reinforcement of responses.

These practices have been discussed previously in this *School Improvement Research Series*. The 1988 "close-up" report entitled *Instructional Reinforcement* looks at the ways teachers respond to student answers and other student comments, and how the nature of those responses relate to student outcomes. *Monitoring Student Learning in the Classroom*, also published in 1988, discusses classroom questioning as one of many approaches teachers can use to track student learning. The findings emerging from these investigations are congruent with the general literature on questioning, including:

- Redirection and probing (often researched together) are positively related to achievement when they are explicitly focused, e.g., on the clarity, accuracy, plausibility, etc. of student responses.
- Redirection and probing are unrelated to achievement when they are vague or critical, e.g., "That's not right; try again"; "Where did you get an idea like that? I'm sure Suzanne has thought it through more carefully and can help us."
- Acknowledging correct responses as such is positively related to achievement.
- Praise is positively related to achievement when it is used sparingly, is directly related to the student's response, and is sincere and credible.

Student Attitudes

Reports on most practices investigated by educational researchers include findings about the effects of the practice on student attitudes as well as learning outcomes. Research on the relationship between questioning practices and student attitudes is virtually nonexistent. The only findings emerging from the literature reviewed in preparation for this report include:

- The cognitive level of questions posed is unrelated to students' attitudes toward the subject matter.
- Those students who prefer lower cognitive questions perform better in recitations and on tests where lower cognitive questions are posed.
- Those students who prefer higher cognitive questions perform equally well with higher or lower cognitive questions in recitations and on tests.

Teacher Training

Research tells us that preservice teachers are given inadequate training in developing questioning strategies and, indeed, that some receive no training at all. What happens when teachers participate in training designed to help them improve their questioning skills? Research indicates that:

- Training teachers in asking higher cognitive questions is positively related to the achievement of students above the primary grades.
- Training teachers in increased wait-time is positively related to student achievement.
- Training teachers to vary their questioning behaviors and to use approaches other than questioning during classroom discussions (e.g., silence, making statements) are positively related to student achievement.

Guidelines for Classroom Questioning

Based on the foregoing findings from the research on classroom questioning, the following recommendations are offered:

- Incorporate questioning into classroom teaching/learning practices.
- Ask questions which focus on the salient elements in the lesson; avoid questioning students about extraneous matters.

- When teaching students factual material, keep up a brisk instructional pace, frequently posing lower cognitive questions.
- With older and higher ability students, ask questions before (as well as after) material is read and studied.
- Question younger and lower ability students only after material has been read and studied.
- Ask a majority of lower cognitive questions when instructing younger and lower ability students. Structure these questions so that most of them will elicit correct responses.
- Ask a majority of higher cognitive questions when instructing older and higher ability students.
- In settings where higher cognitive questions are appropriate, teach students strategies for drawing inferences.
- Keep wait-time to about three seconds when conducting recitations involving a majority of lower cognitive questions.
- Increase wait-time beyond three seconds when asking higher cognitive questions.
- Be particularly careful to allow generous amounts of wait-time to students perceived as lower ability.
- Use redirection and probing as part of classroom questioning and keep these focused on salient elements of students' responses.
- Avoid vague or critical responses to student answers during recitations.
- During recitations, use praise sparingly and make certain it is sincere, credible, and directly connected to the students' responses.

Detailed instructions for teaching students to draw inferences is outside the scope of this paper. However, the model offered by Pearson (1985) does provide some basic steps which can help students make connections between what they know and what they are seeking to learn. Pearson suggests that teachers complete all the steps in this process by way of demonstration, then gradually shift responsibility for all but the first step to the students.

1. Ask the inference question.
2. Answer it.
3. Find clues in the text to support the inference.
4. Tell how to get from the clues to the answer (i.e., give a line of reasoning).

Better preservice training in the art of posing classroom questions, together with inservice training to sharpen teachers' questioning skills, have potential for increasing students' classroom participation and achievement. Increasing wait-time and the incidence of higher cognitive questions, in particular, have considerable promise for improving the effectiveness of classroom instruction.

Key References

Adams, J. *Refinements in Teaching Comprehension: Who Should Ask the Questions?* Paper presented at the Annual Meeting of the Illinois Reading Council, Peoria, IL, March 7-9, 1985. (ED 255 874).

Investigates the effects of teaching elementary children about the kinds of questions used in educational settings and how to generate good comprehension questions. Fourteen teachers and their students in grades one through eight participated. Experimental students outperformed controls on standardized tests.

Bozsik, B.E. *A Study of Teacher Questioning and Student Response Interaction During Pre-Story and Post-Story Portions of Reading Comprehension Lessons.* Paper presented at the Annual Meeting of the American Educational Research Association, New York, March 19-23, 1982. (ED 215 294).

Compares the questioning behavior of four preservice and four inservice teachers in an inner city elementary school. Also

compares the teachers' approaches to questioning high and low ability students.

Bradtmueller, W.G., and Egan, J.B. *To Question or Not to Question: That Seems to Be the Question.* Paper presented at the Annual Meeting of the Great Lakes Regional Conference of the International Reading Association, Springfield, IL, October 5-8, 1983. (ED 248 492).

Reviews research on the effects of questioning—particularly the level, placement, and timing of questions during reading lessons. Offers guidelines for classroom questioning.

Brophy, J., and Good, T.L. "Teacher Behavior and Student Achievement." In *Handbook of Research on Teaching* (3rd ed.), edited by Merlin C. Wittrock. New York: Macmillan Publishing Co., 1985.

Summarizes research on classroom practices which are positively related to student achievement. Regarding teachers' classroom questioning strategies, research indicates that (1) most questions should elicit correct responses; (2) higher cognitive questions are not categorically better than lower cognitive questions; and (3) teaching complex cognitive content calls for asking questions that few students can answer correctly (or which have no one correct answer).

Cooter, R.B., and Flynt, F.E. *Reading Comprehension: Out of the Ivory Tower and into the Classroom.* Paper presented at the Annual Meeting of the College Reading Association, Washington, D.C., October 26-28, 1984. (ED 251 824).

Examines the effects of eliminating literal questions—and asking only inferential questions—on the literal and inferential comprehension of third and fourth graders. Experimental students outperformed controls on both literal and inferential comprehension tests.

Dillon, J.T. "Research on Questioning and Discussion." *Educational Leadership* 42(1984): 50-56.

Draws a distinction between recitation and discussion and cites research regarding the nature and effectiveness of discussion. Offers recommendations for engaging students in discussions and makes suggestions for further research.

Gall, M. "Synthesis of Research on Teachers' Questioning." *Educational Leadership* 42(1984): 40-47.

Reviews research on the effects of teachers' questioning techniques and identifies implications of this research for classroom practice.

Gall, M.D.; Ward, B.A., Berliner, D.C.; Cahen, L.S.; Winne, P.H.; Elashoff, J.D.; and Stanton, G.C. "Effects of Questioning Techniques and Recitation in Student Learning." *American Educational Research Journal* 15(1978): 175-199.

Reports the results of two experiments involving the study of ecology by sixth graders (n=336 and n=371). Found that probing and redirection questions had no effect on student achievement, nor did varying levels of higher cognitive questions. Recitation treatments involving scripted lessons were effective in promoting achievement.

Good, T.L., and Brophy, J.E. *Looking in Classrooms.* New York: Harper & Row, Publishers, 1978.

Focuses on helping teachers and researchers to become better classroom observers and on providing teachers with research-based suggestions to improve their teaching. Includes a section on teacher questioning strategies and their effects.

Hansen, J., and Pearson, P.D. *The Effects of Inference Training and Practice on Young Children's Comprehension.* Technical Report No. 166. Cambridge, MA: Bolt, Beranek and Newman, Inc.; Champaign, IL: University of Illinois, 1980. (ED 186 839).

Investigates the effects of giving children instruction and practice in making inferences upon their reading comprehension.

Twenty-four second graders in a treatment condition and two comparison conditions participated. Practice in drawing inferences enhanced comprehension.

Henson, K.T. "Questioning as a Mode of Instruction." *The Clearing House* 53(1979): 14-16.

Provides an overview of research findings on teachers' classroom questioning and provides guidelines for framing and asking more productive questions.

Honea, J.M., Jr. "Wait-Time as an Instructional Variable: An Influence on Teacher and Student." *The Clearing House* 56(1982): 167-170.

Reports the results of an experiment in which the effects of increasing wait-time were studied. Twenty-four high school students participated in their social studies classes. Increasing wait-time to three to five seconds significantly improved student engagement and participation.

Hoxmeier, K.A. *Questioning Techniques for Teachers: Teaching Reading, Thinking, and Listening Skills.* Paper presented at the Annual Meeting of the North Central Reading Association, South Bend, IN, October 23-25, 1986. (ED 284 186).

Presents current research on questioning techniques for classroom use. Analyzes different types of questions and provides information on teachers' actual question-posing behaviors. Offers guidelines for classroom questioning.

Hunkins, F.P. "Effects of Analysis and Evaluation Questions on Various Levels of Achievement." *The Journal of Experimental Education* 38(1969): 45-58.

Studies the relative effects of higher and lower cognitive questions in the social studies text materials of students in the sixth grade. Higher cognitive questions produced significantly higher scores than did lower cognitive questions.

Johnston, J.D.; Markle, G.C.; and Haley-Oliphant, A. "What Research Says About Questioning in the Classroom." *Middle School Journal* 18(1987): 29-33.

Summarizes research on the effectiveness of recitation and discussion, the use of differing cognitive levels of questions, the effect of questioning on student participation, the usefulness of prescriptions for questioning, and teacher thinking regarding questioning.

Kennon, C.H. *Utilizing Moral Dilemmas to Enhance Comprehension.* Paper presented at the Annual Meeting of the International Reading Association, St. Louis, MO, May 5-9, 1980. (ED 189 548).

Cites research regarding the value of higher cognitive questioning techniques and proposes use of the Cognitive Developmental Approach to Moral Education to foster higher level thinking skills. Presents results of a study involving this instructional approach.

Kleinman, G.S. "Teachers' Questions and Student Understanding of Science." *Journal of Research in Science Teaching* 3(1965): 307-317.

Investigates the relationship between teachers' questioning techniques and (1) both teacher and student behavior, and (2) student achievement. Seventh and eighth graders in 23 science classes participated. Most significant findings were that (1) all students of teachers who asked predominantly critical thinking questions were more on-task, alert, etc., and (2) higher ability students showed greater improvement with critical thinking questions than similar students asked lower level questions.

Mahlios, M., and D'Angelo, K. *Teacher Questions: An Experimental Analysis of the Question Effect Hypothesis.* Paper presented at the Annual Meeting of the Association of Teacher Educators, Orlando, FL, February 1, 1983. (ED 227 062).

Investigates the effects of different types of classroom questioning on the nature of

student responses, student achievement and student attitudes. Higher order questions led to higher achievement but did not seem to affect attitude measures. Student answers were both longer and at higher levels when they were exposed to higher level questioning.

Mangano, N.G., and Benton, S.L. "Comparison of Question-Response-Feedback Interactions During Basal Reader Instruction." *Journal of Educational Research* 78(1984): 119-126.

Analyzes the classroom behaviors of 18 fourth grade teachers and the reading comprehension scores of their 299 students to identify correlations. The teachers of higher achieving students asked more text-based questions, provided more positive feedback, probed more, and used more probe types than other teachers.

Mills, S.R.; Rice, C.T.; Berliner, D.C.; and Rosseau, E.W. "The Correspondence between Teacher Questions and Student Answers in Classroom Discourse." *Journal of Experimental Education* 48(1980): 194-204.

Investigates the relationship between the cognitive level of teachers' questions and the cognitive levels of students' responses. Fifty-four classes of students in grades four through eight and their teachers participated. Chances were found to be about even (53 percent) that student responses would correspond in cognitive level with teacher questions.

Pearson, P.D., "Changing the Face of Reading Comprehension Instruction." *The Reading Teacher* 38(1985): 724-738.

Discusses current research and trends regarding the teaching of reading comprehension. Presents research findings and guidelines concerning teachers' questioning strategies.

Redfield, D.L., and Rousseau, E.W. "A Meta-analysis of Experimental Research on Teacher Questioning Behavior." *Review of Educational Research* 51(1981): 237-245.

Reviews 20 research studies on the achievement differences produced by higher and lower cognitive questions. Concludes that asking higher cognitive questions has a significant and positive effect on student performance.

Riley, J.P., II. "The Effects of Teachers' Wait-Time and Knowledge Comprehension Questioning on Science Achievement." *Journal of Research in Science Teaching* 23(1986): 335-342.

Investigates relationships among cognitive level of teacher questions, wait-time, and student achievement of knowledge and comprehension level objectives. The most desirable wait-time and questioning strategy differed depending upon objectives.

Rowe, M.B. "Science, Silence, and Sanctions." *Science and Children* 6(1969): 11-13.

Summarizes research on the effects of teachers' questioning behaviors and encourages teachers to make use of these findings in their classrooms.

Samson, G.E.; Strykowski, B.; Weinstein, T.; and Walberg, H.J. "The Effects of Teacher Questioning Levels on Student Achievement." *Journal of Educational Research* 80(1987): 290-295.

Summarizes a meta-analysis of 14 studies of the relative achievement effects of asking higher and lower cognitive questions in classroom discussions. Found that students exposed to higher cognitive questions outperformed other students, but that the effect size is small.

Shuck, R.F. "An Empirical Analysis of the Power of Set Induction and Systematic Questioning as Instructional Strategies." *Journal of Teacher Education* 36(1985): 38-43.

Compares the achievement of 120 ninth graders whose teachers received various kinds of training or no training. Different groups of teachers were trained in (1) set induction, (2) systematic questioning, (3) both and (4) neither. Trained teachers' students outperformed those of control teachers, and students of set induction-trained teachers outperformed those of questioning strategy-trained teachers.

Sitko, M.C., and Slemon, A.L. "Developing Teachers' Questioning Skills: The Efficacy of Delayed Feedback." *Canadian Journal of Education* 7(1982): 109-121.

Describes a study in which twenty teachers were taught a questioning technique to enable them to ask more higher cognitive questions and to vary the level of questions posed during discussions. Results indicated that training enables them to ask more higher level questions, that there was a close correlation between the level of questions and student responses, and that the incidence of higher level student responses increased.

Smith, L.R. "The Effect of Lesson Structure and Cognitive Level of Questions on Student Achievement." *Journal of Experimental Education* 54(1985): 44-49.

Examines the effects of highly structured and more loosely structured lessons and of higher and lower cognitive test questions on students' test performance. High-ability students performed better with highly structured lessons. All students performed better with lower level questions.

Soled, S.W. *Teaching Processes To Improve Both Higher As Well As Lower Mental Process Achievement.* Paper presented at the Annual Meeting of the American Educational Research Association, Washington, D.C., April 20-24, 1987. (ED 287 823).

Reports the results of two studies, one involving 100 seventh graders and the other involving 85 ninth graders, in mathematics and science. The use of higher cognitive questions in the classroom, in the instructional materials, and in tests resulted in greater gains in both higher and lower mental process achievement on the part of experimental students.

Swift, J.N., and Gooding, C.R. "Interaction of Wait-Time Feedback and Questioning Instruction on Middle School Science Teaching." *Journal of Research in Science Teaching* 20(1983): 721-730.

Studies the effects of increased wait-time and questioning skills (separately and together) on the quality of classroom discussions in 40 middle school science classes. Instruction in questioning skills made little difference, but increased wait-time resulted in greater student engagement during classroom discussions.

Tobin, K.G., and Capie, W. *The Effects of Teacher Wait-Time and Questioning Quality on Middle School Science Achievement.* Paper presented at the Annual Meeting of the American Psychological Association, Montreal, September 1980.

Reports the results of a study of questioning and wait-time involving middle school students in thirteen classes. Teachers' posing higher order questions and waiting three to five seconds for student responses were both significantly related to student achievement and retention.

Tobin, K., and Capie, W. *Wait-Time and Learning in Science.* Burlington, NC: Carolina Biological Supply Co. 1981. (ED 221 353).

Discusses different conceptualizations of wait-time, synthesizes the literature on wait-time, and assesses the efficacy of training teachers in wait-time strategies. Implications of findings for pupils in science classes are discussed.

Wilen, W.W. *Questioning Skills for Teachers. What Research Says to the Teacher.* Washington, D.C.: National Education Association, 1982. (ED 222 488).

Reviews research findings concerning the verbal questioning practices of teachers and offers research-based suggestions for teachers' use.

Wilen, W.W., and Searles, J.E. "Teachers' Questioning Behavior: Students' Preferences and the Relationship of Preferences to Achievement." *Education* 98(1977): 237-245.

Presents the results of a study of the relationship between students' preferences regarding the cognitive level of questions put to them and their performance when

tested with questions of that type. Forty-three eleventh graders in social studies classes participated. Virtually no students preferred higher level questions and those preferring lower level questions performed better with this kind of question than with other kinds.

Winne, P.H. "Experiments Relating Teachers' Use of Higher Cognitive Questions to Student Achievement." *Review of Educational Research* 39(1979): 13-50.

Reviews 13 studies of the relative effects of higher and lower cognitive questions on student achievement. Concludes that there are no significant achievement differences between the two approaches.

Wixson, K.K. "Questions About a Test: What you Ask About Is What Children Learn." *Reading Teacher* 37(1983): 287-93.

Reviews two studies of the relationship between the kinds of questions students are asked and the information they are later able to recall about passages they have read. Fifth graders in both studies had the best recall regarding story content about which they had previously been queried.

Other References

Anthony, H.M., and Raphael, T.E. "Using Questioning Strategies to Promote Students' Active Comprehension of Content Area Material." *Occasional Paper No. 109.* East Lansing, MI: Michigan State University, 1987. (ED 280 011).

Discusses the kinds of conceptual knowledge involved in comprehension, reviews questioning strategies that can help foster comprehension, and identifies instructional methods that can help students learn to use questioning techniques.

Christenburg, L., and Kelly, P.P. *Questioning: A Path to Critical Thinking.* Urbana, IL: ERIC Clearinghouse on Reading and Communication; National Council of Teachers of English, 1983. (ED 226 372).

Presents theory and guidelines regarding questioning techniques to help upper elementary and secondary teachers increase their students' critical thinking.

Ciardiello, A.V. "Teacher Questioning and Student Interaction: An Observation of Three Social Studies Classes." *The Social Studies* (1986): 119-122.

Discusses the questioning behaviors of three observed teachers in relation to research findings regarding teacher questioning and his personal experiences as a social studies teacher.

Cotton, K. *Instructional Reinforcement.* Portland, OR: Northwest Regional Educational Laboratory, 1988.

Synthesizes the research on reinforcing students' learning in classroom settings and offers research-based guidelines for providing reinforcement.

Cotton, K. *Monitoring Student Learning in the Classroom.* Portland, OR: Northwest Regional Educational Laboratory, 1988.

Summarizes research on the effects of various classroom monitoring practices and provides guidelines for effective classroom monitoring.

Dillon, J.T. *Teaching and the Art of Questioning.* Bloomington, IN: Phi Delta Kappa Educational Foundation, 1983.

Discusses the role of questioning in educational settings and points to the drawbacks of the questioning style used in typical classroom recitations. Cites the advantages of true discussion—as opposed to recitation—and offers alternatives to questioning in classroom discussions.

Gall, M.D. "The Importance of Context Variables in Research on Teaching Skills." *Journal of Teacher Education* 28(1977): 43-48.

Uses data from two experiments involving questioning techniques to illustrate the importance of context variables in classroom research studies.

Harvard Graduate School of Education. "Teachers' Questions: Why Do You Ask?" *Education Letter* 3(1987): 1-3.

Discusses research on questioning and offers research-based guidelines for teachers' classroom questioning methods.

Hargreaves, D.H. "Teachers' Questions: Open, Closed, and Half-open." *Educational Research* 26(1984): 46-51.

Discusses the relationship between teachers' questioning techniques and student behavior, including the ways that these influence one another.

Martin, R.J. "InSPIRE." *Reading Psychology* 8(1987): 0 127-129.

Describes the methodology and preliminary results of a study of the Intervention for Student Performance in Reading Education (InSPIRE) program. Teachers participate in staff development to improve their questioning/reinforcement skills, and are subsequently observed and given feedback on their performance.

Meyer, L.A. *Teachers' Comprehension Questions: What Functions Might They Serve?* Champaign, IL: Illinois University, Center for the Study of Reading, 1984. (ED 247 520).

Reports the results of an observational study of the questioning behaviors of first, second, and third grade teachers in a rural southwestern school. Teachers asked more factual questions of younger and lower performing students and more inferential questions of older and higher performing students.

Ornstein, A.C. "Questioning: The Essence of Good Teaching - Part II." *NAASP Bulletin* 72(1988): 72-80.

Reviews research on questioning techniques and offers research-based "tips" and "pitfalls" to help teachers ask more productive classroom questions.

Partin, R.L. "How Effective Are Your Questions?" *The Clearing House* 52(1979): 254-256.

Discusses the reasons teachers ask questions as part of instruction and offers guidelines for questioning strategies. Includes advice about types of questions to avoid.

Stiggins, R.J., and Liston, S. *Guidelines on the Use of Instructional Questions as Classroom Assessment.* Portland, OR: Northwest Regional Educational Laboratory, 1988 (draft).

Discusses classroom questioning strategies in relation to what is known about conducting sound assessments. Summarizes research on questioning and looks at the role of questioning in both teacher and student decision making.

Wise, B., and Sharer, J.C. *Effectiveness Training for Elementary Teachers of Reading.* Paper presented at the Annual Meeting of American Reading Forum, Saratosa, FL, December 8-10, 1983. (ED 240 530).

Investigates the effects of five kinds of instructional process variables on the reading achievement of children in grades two through five. Significant differences between more and less effective teachers were noted in the areas of engaging students in learning and asking direct questions.

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School Improvement Research Series

Close-Up #6

Parent Involvement in Education

Kathleen Cotton
and
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Introduction

It is no wonder that parent involvement with the schools has become a major educational issue in the 1980s. This is an era of increasing concern about the quality of education in this country. States are taking a greater role in monitoring and maintaining academic standards. Communities are ever more watchful of the expense of public education. Local schools are concerned about continuing to provide high-quality teaching and other services with dwindling resources. And parents want assurance that their children will receive adequate preparation to lead rewarding adult lives.

Is parent involvement a valuable, if largely untapped, resource for schools struggling to provide state-of-the-art instruction with diminishing funds—a way to instill pride and interest in schooling, increase student achievement, and enhance a sense of community and commitment? Or is it one more responsibility to add to overburdened teachers and administrators—or even a threat to the autonomy and professionalism of the schools?

This review of the literature on parent involvement examines these issues, focusing, in particular on the following five areas:

- Does parent involvement have positive effects on student achievement? If so, what type of involvement works best?
- What are the effects of parent involvement on other student outcomes, such as attitude, self-concept, classroom behavior, and attendance?
- Is parent involvement useful beyond the preschool and early elementary grades—in middle school and high school? If so, what form should it take?
- What is known about the uses of parent involvement in predominantly minority and/or lower income communities?
- What, if any, effects on children's schooling can be attributed to parent involvement in the governance of schools?

Definition of Parent Involvement

The term "parent involvement" is used broadly in this report. It includes several different forms of participation in education and with the schools. Parents can support their children's schooling by attending school functions and responding to school obligations (parent-teacher conferences, for example). They can become more involved in helping their children improve their schoolwork—providing encouragement, arranging for appropriate study time and space, modeling desired behavior (such as reading for pleasure), monitoring homework, and actively tutoring their children at home.

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School Improvement Program

Outside the home, parents can serve as advocates for the school. They can volunteer to help out with school activities or work in the classroom. Or they can take an active role in the governance and decision making necessary for planning, developing, and providing an education for the community's children.

The Parent Involvement Literature

There are literally hundreds of books, journal articles, and stand-alone reports on the subject of parents' involvement in their children's education. These writings include research reports, expert opinions, theory papers, program descriptions, and guidelines for setting up programs. A great many of these reports are informative and useful, and, because parent involvement has become a "hot topic" in the past few years, there is considerable current information.

The present report synthesizes information from forty-one documents on different aspects of parent involvement. Because several of these are review/summaries of still other documents, many additional writings are represented.

Documents were selected to reflect research on the effects of parent involvement on student achievement and other student outcomes. Twenty-five of the supporting documents are research studies, eight are reviews, and eight are program descriptions and research-based guidelines for setting up programs. All age/grade levels are represented in the research, as are specific student populations, such as the disadvantaged, special education, and limited English proficient students.

The kinds of parent involvement investigated include telephone and written home-school communications, attending school functions, parents serving as classroom volunteers, parent-teacher conferences, homework assistance/tutoring, home educational enrichment, and parent involvement in decision making and other aspects of school governance. The researchers focused on a variety of student outcome areas, including general achievement; achievement in reading, math, or other specific curricular areas; IQ scores; and an array of attitudinal and behavioral outcomes.

Effects of Parent Involvement on Student Achievement

The research overwhelmingly demonstrates that parent involvement in children's learning is positively related to achievement. Further, the research shows that the more intensively parents are involved in their children's learning, the more beneficial are the achievement effects. This holds true for all types of parent involvement in children's learning and for all types and ages of students.

Looking more closely at the research, there are strong indications that the most effective forms of parent involvement are those which engage parents in working directly with their children on learning activities in the home. Programs which involve parents in reading with their children, supporting their work on homework assignments, or tutoring them using materials and instructions provided by teachers, show particularly impressive results.

Along similar lines, researchers have found that the more active forms of parent involvement produce greater achievement benefits than the more passive ones. That is, if parents receive phone calls, read and sign written communications from the school, and perhaps attend and listen during parent teacher conferences, greater achievement benefits accrue than would be the case with no parent involvement at all. However, considerably greater achievement benefits are noted when parent involvement is active—when parents work with their children at home, certainly, but also when they attend and actively support school activities and when they help out in classrooms or on field trips, and so on.

The research also shows that the earlier in a child's educational process parent involvement begins, the more powerful the effects will be. Educators frequently point out the critical role of the home and family environment in determining children's school success, and it appears that the earlier this influence is "harnessed," the greater the likelihood of

higher student achievement. Early childhood education programs with strong parent involvement components have amply demonstrated the effectiveness of this approach.

What about orientation and training for parents who wish to become more involved in their children's learning? Those research studies which have compared parent involvement programs that include orientation/training components with those that do not indicate that providing orientation and training enhances the effectiveness of parent involvement. Research in this area indicates that parents generally want and need direction to participate with maximum effectiveness. Orientation/training takes many forms, from providing written directions with a send-home instructional packet; to providing "make-and-take" workshops where parents construct, see demonstrations of, and practice using instructional games; to programs in which parents receive extensive training and ongoing supervision by school personnel.

A word of caution about training activities for parents: While research indicates that orientation/training activities are beneficial, those researchers who have looked at the *extent* of training have found that a little is better than a lot. That is, programs with extensive parent training components do not produce higher student achievement than those with only basic training, and they sometimes experience considerable attrition—presumably because their time and effort requirements overtax the willingness of parents to stay involved.

Researchers have also found that the schools with the most successful parent involvement programs are those which offer a variety of ways parents can participate. Recognizing that parents differ greatly in their willingness, ability, and available time for involvement in school activities, these schools provide a continuum of options for parent participation.

The Effects of Parent Involvement on Student Attitude and Behavior

Sixteen of the documents on which this report is based address the relationship between parent involvement and achievement and then also look at the effects of parent involvement on student outcomes other than achievement. These include attitude toward school or toward particular subject areas, self-concept, classroom behavior, time spent on homework, expectations for one's future, absenteeism, motivation, and retention.

While not as extensively researched as the parent involvement-student achievement relationship, the relationship between parent involvement and these affective outcomes appears to be both strong and positive. All the research studies which address these areas found that parent involvement has positive effects on student attitudes and social behavior.

As might be expected, the pattern of parent involvement shown to confer the most positive effects on students' achievement is also the most beneficial with respect to these other student outcomes. In general, active parent involvement is more beneficial than passive involvement, but passive forms of involvement are better than no involvement at all. As for which specific kinds of involvement in children's learning have the greatest affective benefits, no clear answer emerges from the research. Whereas direct parent involvement in instruction seems to be the single most powerful approach for fostering achievement benefits, all of the active forms of parent involvement seem more or less equally effective in bringing about improvements in students' attitudes and behavior.

Although the main focus of this report is the effects of parent involvement on student outcomes, it is certainly worth noting that research reveals many benefits for school systems and for parents themselves when parents become involved in their children's learning. School personnel benefit from the improved rapport that generally accompanies increased parent involvement. This rapport is often expressed in parents' increased willingness to support schools with their labor and resources during fundraising activities or special projects. And certainly, the many ways in which parent involvement benefits students' achievement, attitudes, and behavior have a positive impact on school staff.

The research also reveals that improved parent attitudes toward the school and improved parent self-concepts characteristically

result when parents become involved in their children's learning. Parents often begin their participation doubting that their involvement can make much difference, and they are generally very gratified to discover what an important contribution they are able to make. In this connecton, it is important for school people and parents to be aware that parent involvement supports students' learning, behavior, and attitudes *regardless* of factors such as parents' income, educational level, and whether or not parents are employed. That is, the involvement of parents who are well-educated, well-to-do, or have larger amounts of time to be involved has not been shown to be more beneficial than the involvement of less-advantaged parents. All parent involvement works and works well.

Parent Involvement at the Middle School and Secondary Levels

There is a much higher incidence of parent involvement at the preschool level and in the primary grades than at the middle school or secondary level, and, consequently, the majority of research on parent involvement has been conducted with young children and their families. Indeed, just a few years ago, research on parent involvement in the education of older students was too limited to permit drawing any conclusions about its effectiveness.

In recent years, however, more research has been conducted with middle school and secondary students and their families. This research shows that parent involvement remains very beneficial in promoting positive achievement and affective outcomes with these older students.

Researchers have identified various differences in the incidence and types of parent involvement as students move through the upper elementary and secondary grades. They point out that parents generally become less involved as their children grow older for many reasons: schools are bigger and farther from home, the curriculum is more sophisticated, each student has several teachers, parents of older students are more likely to be employed, and students are beginning to establish some sense of separation and independence from their parents. For these reasons, the kinds of parent involvement engaged in by parents of younger children are no longer relevant or useful.

The research on the effectiveness of parent involvement with older students, therefore, often focuses on different forms of participation—e.g., parents monitoring homework, helping students make postsecondary plans and select courses which support these plans, parent-school agreements on rewards for achievement and behavioral improvements—as well as some of the "standby" functions, such as regular home-school communication about students' progress and parent attendance at school-sponsored activities.

Clearly, parent involvement is effective in fostering achievement and affective gains at all levels, and schools are encouraged to engage and maintain this involvement throughout the middle school and secondary years.

The Role of Parent Involvement with Disadvantaged Students

Thus far, this report has focused on the effects of parent involvement on achievement and other outcomes for students in general. But what about specific populations of students, particularly those whose socioeconomic status puts them at an educational disadvantage as compared with their more fortunate peers?

The nature of the parent involvement research base makes this question easier to address than it might be if it were necessary to mount all-new research efforts with disadvantaged populations. As it is, much of the general parent involvement research has been conducted with low-income, often black or Hispanic families. Sometimes this has occured because both the parent involvement activities and the evaluations of them have been mandated as part of government-funded programs for disadvantaged children. In other cases, educators sensed the potential of parent involvement programs in poor neighboorhoods, set these up, and then compared outcomes with those from other schools which are demographically similar.

The first thing researchers discovered is that minority or low-income parents are often underrepresented among the ranks of parents involved with the schools. There are numerous reasons for this: lack of time or energy (due to long hours of heavy physical labor, for example), embarrassment or shyness about one's own educational level or linguistic abilities, lack of understanding or information about the structure of the school and accepted communication channels, perceived lack of welcome by teachers and administrators, and teachers and administrators' assumptions of parents' disinterest or inability to help with children's schooling.

Perhaps one of the most important findings of the research, however, is that parents of disadvantaged and minority children can and do make a positive contribution to their children's achievement in school if they receive adequate training and encouragement in the types of parent involvement that can make a difference. Even more significant, the research dispels a popular myth by revealing, as noted above, that parents can make a difference regardless of their own levels of education. Indeed, disadvantaged children have the most to gain from parent involvement programs.

Because of the special problems and the potential associated with minority and disadvantaged parent involvement, care must be taken to emphasize the concept of parents as partners of the school. Too often, because of the discontinuities between teachers/administrators and the communities in which their schools are located, school personnel tend to view the parents and surrounding community as needing to change and having little to offer. This "deficit model," as it has been called, is clearly detrimental to the development of positive attitudes about education and good working relationships between the community and the school. The guidelines offered at the end of this report can help schools and communities break down some of these barriers and move toward genuine working partnerships.

It is worth mentioning, in passing, that parent involvement benefits members of other special student populations as well. While the investigation leading to this report did not involve an in-depth analysis of evidence regarding these populations, the research reviewed does indicate that special education, gifted, limited English proficient, and other student groups also experience achievement and affective benefits when their parents are involved in their learning.

The Effects of Parent Involvement in School Governance

Turning from the matter of parent involvement in children's learning, what about the outcomes produced by parent involvement in school governance? The term "governance" here includes any activity which provides parents the opportunity to take part in decision making about school programs. This may include being a school board member, a participant on a parent advisory committee or a local school improvement council, or an active member of the PTA. Areas in which parents may be helping to make program decisions include goal setting, development and implementation of program activities, assessment, personnel decisions, and funding allocations.

This area of parent involvement is one of the most controversial. Surveys show that most parents would like to play a more active role in this type of involvement, whereas most school administrators and teachers exhibit great reluctance to encourage parents to become partners in governance.

The literature reviewed for this report indicates that although administrators agree that parents should be involved with the schools in a variety of ways and that school personnel should spend time encouraging and training parents to become involved, they disapprove of parent involvement in administrative areas such as teacher and principal selection and evaluation, and are less enthusiastic than parents regarding the utility of parent participation in other activities, such as the selection of texts and other teaching materials or setting priorities for the school budget. They also tend to feel that parents do not have enough training to make school decisions, although surveys of parents indicate that the majority of them feel they are capable of making sound decisions.

In this review, no examples were found of programs in which parent participation in decision-making roles could be directly linked to improved student achievement. The relationship between parent participation in decision making and student achievement is not nearly as extensively researched as the effects of parent involvement in students' learning. Indeed, writers on the topic indicate that it is more difficult to assess the effects of parent involvement in decision making precisely because the connection to student outcomes is more indirect.

Of the half-dozen documents which do address the connection between parent involvement in decision making and student achievement, none were able to offer evidence of a causal relationship, though some writers seem to believe that such a relationship exists.

The lack of evidence linking parent involvement in governance and student achievement should not be taken to mean that parents should not be included in some aspects of school decision making, however. Researchers and others have identified benefits other than student achievement which have been found to emerge from involving parents in governance. These include:

- The elimination of mistaken assumptions parents and school people may hold about one anothers motives, attitudes, intentions and abilities
- The growth of parents' ability to serve as resources for the academic, social and psychological development of their children—with the potential for much longer-term influence (because of continued interaction with their children over time)
- The increase of parents' own skills and confidence, sometimes furthering their own educations and upgrading their jobs, thus providing improved role models for their children
- The increase in parents serving as advocates for the schools throughout the community

Research indicates that the kinds of parent involvement referenced earlier in this report—attending parent-teacher conferences and school functions, volunteering in classrooms, tutoring children at home, etc.—provide the best training ground to help prepare parents for roles in school decision making. These activities enable parents to understand something of the school's structure and its instructional programs and provide basic experience in working with school personnel. These experiences can expand parents' knowledge and increase their credibility with school staff as they move into decision-making roles.

Engaging Meaningful Parent Involvement in the Schools

Investigators have identified lack of planning and lack of mutual understanding as the two greatest barriers to effective parent involvement. School staff wishing to institute effective programs will need to be both open-minded and well-organized in their approach to engaging parent participation.

Research has established that the most successful parent participation efforts are those which offer parents a variety of roles in the context of a well-organized and long-lasting program. Parents will need to be able to choose from a range of activities which accommodate different schedules, preferences, and capabilities. As part of the planning process, teachers and administrators will need to assess their own readiness for involving parents and determine how they wish to engage and utilize them.

Other guidelines include:

- Communicate to parents that their involvement and support makes a great deal of difference in their children's school performance, and that they need not be highly educated or have large amounts of free time for their involvement to be beneficial. Make this point repeatedly.
- Encourage parent involvement from the time children first enter school (or preschool, if they attend).
- Teach parents that activities such as modeling reading behavior and reading to their children increase children's interest in learning.

- Develop parent involvement programs that include a focus on parent involvement in *instruction*—conducting learning activities with children in the home, assisting with homework, and monitoring and encouraging the learning activities of older students.

- Provide orientation and training for parents, but remember that intensive, long-lasting training is neither necessary nor feasible.

- Make a special effort to engage the involvement of parents of disadvantaged students, who stand to benefit the most from parent participation in their learning, but whose parents are often initially reluctant to become involved.

- Continue to emphasize that parents are partners of the school and that their involvement is needed and valued.

Key Studies and Reviews

Armor, D.; Conry-Oseguera, P.; Cox, M.; King, N.; McDonnell, L.; Pascal, A.; Pauly, E.; and Zellman, G. *Analysis of the School Preferred Reading Program in Selected Los Angeles Minority Schools.* Santa Monica, CA: Rand Corporation, 1976. (ED 130 243).

Investigates the factors associated with high and low reading achievement in twenty elementary schools with a high proportion of poor minority students. Several elements associated with achievement gains were identified, including high levels of contact between parents and school staff.

Becher, R. M. *Parent Involvement: A Review of Research and Principles of Successful Practice.* Urbana, IL: ERIC Clearinghouse on Elementary and Early Childhood Education, 1984. (ED 247 032).

Reviews research on parent involvement and presents extensive information on the elements of successful parent involvement programs. Identifies research findings regarding the role of the family in determining children's abilities and achievement, the effects of parent education programs on student outcomes, parental practices which promote reading success, and the role and potential of parent involvement in enhancing school-family relations.

Coleman, J. B., and Hoffer, T. *Public and Private High Schools: The Impact of Communities.* New York: Basic Books, Inc., 1987.

Compares the reading and math achievement of low-income black and Hispanic students in Catholic high schools with the achievement of such students in public high schools. Attributes the superior performance of Catholic school students to the greater involvement of families and communities in these schools.

Collins, C. H.; Moles, O. C.; and Cross, M. *The Home-School Connection: Selected Partnership Programs in Large Cities.* Boston, MA: Institute for Responsive Education, 1982.

Describes 28 parent involvement programs in large American cities and identifies elements which appear responsible for their success. Positive results of involving parents in their children's schooling include improved achievement, reduced absenteeism, improved behavior, and restored confidence among parents in their children's schooling.

Cotton, K., and Savard, W. G. *Parent Involvement in Instruction, K-12: Research Synthesis.* Portland, OR: Northwest Regional Educational Laboratory, 1982. (ED 235 397).

Reviews 18 studies on the effects of parent involvement in instruction on the achievement, attitudes, and behavior of elementary and secondary students. Found such involvement beneficial, especially when parents receive orientation and training for helping their children.

Dornbusch, S. M., and Ritter, P. L. "Parents of High School Students: A Neglected Resource." *Educational Horizons* 66(1988): 75-77.

Reports the results of a survey concerning the relationship between parent involvement and student achievement in six San

Francisco Bay Area high schools. Students whose parents attended school events and engaged in contacts with teachers had higher achievement than those whose parents were minimally involved or uninvolved.

Fehrmann, P. G.; Keith, T. Z.; and Reiners, T. M. "Home Influence on School Learning: Direct and Indirect Effects of Parental Involvement on High School Grades." *Journal of Educational Research* 80(1987): 330-336.

Examines the effects of parental influence on time spent by high school students doing homework and time spent watching television. The sample consisted of 28,051 high school seniors from the High School and Beyond longitudinal study. Data from the HSB questionnaire were analyzed. Increased parent involvement was positively related to students' time spent on homework and on their grades.

Gillman, R. M.; Schooley, D. E.; and Novak, P. D. *The Effects of Parental Involvement on Student Achievement in Three Michigan Performance Contracting Programs.* Paper presented at the Annual Meeting of the American Educational Research Association, April 1977. (ED 144 007).

Compares three Michigan elementary school districts involved in state-funded programs to improve reading achievement. The two districts with minimal parent involvement had higher achievement than schools without such involvement, and the district with intensive parent involvement showed the largest achievement gains.

Goodson, B. D., and Hess, R. D. *Parents as Teachers of Young Children: An Evaluative Review of Some Contemporary Concepts and Programs.* Washington, DC: Bureau of Educational Personnel Development, DHEW, May 1975. (ED 136 967).

Examines evaluations of 29 preschool programs to determine relationships between different approaches to parent training and later student achievement. All approaches were associated with gains in children's IQ scores and achievement and with improvements in parents' teaching behaviors.

Henderson, A. *The Evidence Continues to Grow: Parent Involvement Improves Student Achievement—An Annotated Bibliography.* Columbia, MD: National Committee for Citizens in Education, 1987.

Reviews 49 studies of parent involvement in children's learning at home, in the instructional program at school, and in supporting the school in general. Concludes that all forms of parent involvement have positive effects on student achievement.

Herman, J. L., and Yeh, J. P. "Some Effects of Parent Involvement in Schools." *The Urban Review* 15(1983): 11-17.

Investigates the effects of parent involvement on the achievement of second and third graders in 250 California elementary schools. Children of involved parents showed significantly higher achievement than other students.

Leler, H. "Parent Education and Involvement in Relation to the Schools and to Parents of School-Aged Children." In *Parent Education and Public Policy*, edited by R. Haskins and D. Addams. Norwood, NJ: ABLEX Publishing Co., 1983.

Reviews 48 studies of educational programs with significant parent involvement components. Forms of parent involvement strongly associated with achievement gains included parents helping their children at home after training, tutoring students, and helping in classrooms.

Mucha, L. *Attitudes and Achievement Effects of Mathematics Homework Games on Second Grade Students and Their Parents.* May 1987. (ED 283 698).

Examines the effects of mathematics homework games involving parent participation on the mathematics achievement and attitudes of second graders. Post-tests indicated positive effects of the home activities on achievement and attitudes (toward math, toward self and toward other game players).

Sattes, B. *Parent Involvement: A Review of the Literature*. Charleston, WV: Appalachia Educational Laboratory, November 1985.

Reviews literature on parent involvement in the education of students at all levels. The review cites research indicating beneficial effects of parent involvement on student achievement, attendance, motivation, and behavior. Offers research-based guidelines for engaging parent involvement in schools.

Tangri, S., and Moles, O. "Parents and the Community." In *Educators' Handbook: A Research Perspective*, edited by V. Richardson-Koehler. New York/London: Longman Press, 1987.

Reviews research on the effects of different kinds of parent involvement on student outcomes. Achievement and affective benefits (attendance, behavior, attitudes) are associated with: parents serving as paid classroom aides, parents working as volunteers, home-school communications, phone contacts, home visits, parent-teacher conferences, homework assistance, home tutoring, and home educational environment. Research is inconclusive about the effects on student achievement of parent involvement in decision making.

Walberg, H. J.; Bole, R. E.; and Waxman, H. C. "School-Based Family Socialization and Reading Achievement in the Inner City." *Psychology in the Schools* 17(1980): 509-514.

Investigates the effects on student achievement of parent support of learning activities. Parents of students in grades 1-6 in 41 classes in Chicago agreed to cooperate with teachers in supporting their children's learning activities. Children of involved parents made significantly greater academic gains than children of noninvolved parents.

Walson, T.; Brown, M.; and Swick, K. J. "The Relationship of Parents' Support to Children's School Achievement." *Child Welfare* 62(1983): 175-180.

Offers outcomes of a study of the relationships among education, home support, neighborhood support, and children's achievement. Questionnaires completed by the parents of 362 first graders were analyzed in relation to children's achievement test scores. The children of actively supportive parents scored highest, followed by the children of passively involved parents, and then the children of noninvolved parents.

Willis, C. L. "Strengthening the Bonds Between the School and the Community." *Journal of Educational Public Relations* 9(1987): 28-31.

Cites attributes among elementary schools selected as exemplary through the Elementary School Recognition Program in 1985-86. Elements cited relate to the schools' connections with parents and community members.

Other References

Boulder Valley School District. *A Personalized Kindergarten Program with Supplementary Parent Involvement: Final Report*. Boulder Valley, CO: Bureau of Elementary and Secondary Education, 1975. (ED 116 791).

Studies the effects of providing individualized in-school instruction to developmentally delayed kindergarten children and the effects of providing such instruction plus parent-delivered home activities. Children whose parents conducted activities with them at home significantly outperformed those receiving only in-school instruction.

Cervone, B. T., and O'Leary, K. "A Conceptual Framework for Parent Involvement." *Educational Leadership* 40(1982): 48-49.

Identifies a continuum for parent involvement extending from passive, marginally involved, to active and deeply involved. Categories identified on the continuum include: Reporting Progress, Special Events, Parent Education, and Parents Teaching.

Chavkin, N. F., and Williams, D. L., Jr. "Enhancing Parent Involvement." *Education and Urban Society* 19(1987): 164-184.

Reports the results of a survey of parents and educators in six southern states on parent involvement. Respondents provided views on parent involvement in general, in decision making, parent involvement roles, and parent involvement activities.

Clarke-Stewart, K. A. "Exploring the Assumptions of Parent Education. In *Parent Education and Public Policy*, edited by R. Haskins and D. Addams. Norwood, NJ: ABLEX Publishing Co., 1983.

Looks at the literature on parent education (training parents to support their children's learning) in order to confirm or challenge several assumptions about the value of parent education programs. Claims that while parent education appears to benefit students, many questions remain unanswered—e.g., which kinds of programs work best.

Comer, J. P. "Is 'Parenting' Essential to Good Teaching?" *NEA Today* 6(1988): 34-40.

Discusses parent involvement in the context of social changes in the past 40 years. Discusses projects undertaken in New Haven, Connecticut elementary schools, in which parent involvement activities were largely responsible for dramatic improvements in student achievement. Students in these schools were 99 percent black and from low-income families.

_____. "Parent Participation in the Schools." *Phi Delta Kappan* 67(1986): 442-446.

Describes the changing relationships between schools and communities and discusses the critical role of parent involvement in education. Presents detail on parent involvement programs in New Haven, Connecticut elementary schools—programs which resulted in the schools' moving from being extremely low achieving to universally high achieving.

_____, et al. *Yale Child Study Center School Development Program: Developmental History and Long Term Effects.* New Haven, CT: Yale University, Sept. 1986. (ED 283 910).

Reviews the successes of the SDP over the period 1969-1984. Focuses on the program's major elements, which include (1) the mental health team, which coordinates the other three, (2) the school governance and management body, (3) the parent involvement program, and (4) the curriculum and staff development program.

Edge, D.; Strenecky, B. J.; McLoughlin, J. A.; and Edge, S. M. "Involving Parents and Families in the Educational Process." In *Organizational Psychology in the Schools: A Handbook for Professionals*, edited by C. A. Maher, R. J. Illback, and J. E. Zins. Springfield, IL: Charles C. Thomas, 1984.

Describes parent involvement models and provides detail on Project ENRICH in the state of Kentucky, which includes parent involvement in decision making. Offers guidelines for developing parent involvement programs.

Epstein, J. L. "Home and School Connections in Schools of the Future: Implications of Research on Parent Involvement." *Peabody Journal of Education* 62(1985): 18-41.

Presents findings from research on the effects of parent involvement programs on student attitude, achievement, and other outcomes. Findings from the author's own research efforts are highlighted. The article includes a discussion of the role of school and home computers in students' education.

_____. "Parent Involvement: What Research Says to Administrators." *Education and Urban Society* 19(1987): 119-136.

Provides results of extensive surveys on parent involvement in the state of Maryland. Surveyed were 3,700 first, third, and fifth grade teachers and principals in 600 elementary schools, and 1,200 parents. Recommendations are offered to school administrators based on findings.

Gordon, I. "The Effects of Parent Involvement on Schooling." In *Partners: Parents and Schools*, edited by R. S. Brandt. Alexandria, VA: Association for Supervision and Curriculum Development, 1979.

Describes four models of parent-school-community relations and cites research on the long-term effects of parent involvement. The parent impact model is associated with positive changes in student achievement.

Harris, L.; Kagay, M.; and Ross, J. *The Metropolitan Life Survey of the American Teacher, 1987: Strengthening Links Between Home and School.* New York: Louis Harris and Associates, 1987.

Presents survey results on home-school relationships and addresses such topics as barriers to greater home-school contact, levels of desired and actual contact, and ways to establish stronger home-school linkages.

Henderson, A. T.; Marburger, C. T.; and Ooms, T. "Developing a Family-School Partnership in Every School." In *Beyond the Bake Sale: An Educators Guide to Working With Parents.* Columbia, MD: National Committee for Citizens in Education, 1986.

Provides a listing of basic principles for effective family-school relationships and a discussion of the changing nature of parent involvement as children move through the different grade levels.

Keith, T. Z., et al. "Parent Involvement, Homework, and TV Time: Direct and Indirect Effects on Achievement." *Journal of Educational Psychology* 78(1986): 373-380.

Reports the findings of a study on the relationship of several variables to student achievement. Parent involvement was found to affect achievement indirectly through parents' influence on the time students spend on homework.

Leitch, M. L., and Tangri, S. S. "Barriers to Home-School Collaboration." *Educational Horizons* 66(1988): 70-74.

Reports the results of interviews conducted with junior high school language arts and mathematics teachers and with 60 parents regarding barriers to effective parent involvement. Lack of planning and lack of mutual understanding between teachers and parents appeared to be the greater barriers to collaboration.

Moles, O. C. "Synthesis of Recent Research on Parent Participation in Children's Education." *Educational Leadership* 40(1982): 44-47.

Reviews research on parent involvement and provides findings regarding the effects of parent involvement on achievement and attitudes, presents information on the forms parent involvement takes, identifies barriers to home-school collaboration, and presents effective teacher practices for engaging participation. Research overwhelmingly supports parent involvement in instruction.

National Congress of Parents and Teachers. *Parent Involvement: What Your PTA Can Do.* Chicago, IL: NCPT, 1986.

Cites research on the effects of parent involvement, describes the different forms parent involvement may take, and offers guidelines for engaging parent participation in different aspects of schooling.

Revicki, D. A. *The Relationship Among Socioeconomic Status, Home Environment, Parent Involvement, Child Self-Concept, and Child Achievement.* Chapel Hill, NC: University of North Carolina, March 1981. (ED 206 645).

Examines the relationship among various home background variables and student outcomes, using data from two Parent Education Follow Through Programs on 321 second graders. Active parent involvement was related to increases in the achievement performance and self-concepts of participating children.

Southwest Educational Development Laboratory. *A Regional Directory for Training Teachers and Administrators in Parent Involvement in Education.* Austin, TX: SEDL, 1987.

Offers, in loose-leaf format, an array of parent involvement resources, including information on training programs, parent involvement programs, networks, organizations, literature, training aids, and other resources. While some of the material relates to parent involvement activities and resources in the Southwest region, much of it is applicable to any area.

Swap, S. M. *Enhancing Parent Involvement in Schools.* New York: Teachers College Press, 1987.

Provides in-depth, research-based information on ways to engage and maintain meaningful parent involvement in children's learning and school governance. Provides sample materials and activities for improving parent-school communications.

Tennies, R. H. "A Parent Involvement Program Including Communication to Parents Integrated with a Parent Education Program and Its Effect on Academic Achievement, Classroom Conduct, Study Habits, and Attitudes." *Community Education Research Digest* 1(1986): 7-13.

Investigates the effects of implementing a parent involvement activity on achievement and other outcomes of students in grades 6-12. A control group and two groups with different levels of parent involvement were compared. Children of involved parents had higher GPAs than controls. There were no significant differences on other variables.

Vinograd-Bausell, C. R., and Bausell, R. B. "Home Teaching of Word Recognition Skills." *Journal of Research and Development in Education* 20(1987): 57-65.

Presents results of a study in which 195 parents taught their first graders word recognition skills at home, using materials provided by the school. These students significantly outperformed controls. The article also presents findings from 20 studies on home tutoring. Home tutoring program formats included: (1) professionally supervised tutoring, (2) professionally administered training, (3) televised instruction, and (4) materials only (like the format of the study). All formats were found to be useful, with the materials only format viewed as having the widest feasibility.

Yap, K. O. *Improving Chapter I through Parents: A Family Goal Program.* Paper presented at the Annual Meeting of the American Educational Research Association, Washington, DC, April 20-24, 1987. (ED 285 895).

Compares the reading achievement scores and reading attitudes of elementary students whose parents worked with them in a parent involvement program to the scores of nonparticipants. Results somewhat favored experimental children. Control children and parents were found to have engaged in activites very similar to those of experimental families.

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School Improvement Research Series

Effective Practices in Place: Snapshot #9

Literature-Based Reading Instruction: Pine Butte Elementary School

Jocelyn A. Butler

Research Findings

Methods and techniques used in the Pine Butte Elementary School literature-based reading program are supported by findings from the effective schools research. As synthesized in *Effective Schooling Practices: A Research Synthesis* (Northwest Regional Educational Laboratory 1984), supportive research findings include the following **classroom**-level elements:

1.1 Instruction is guided by a preplanned curriculum.

- Learning goals and objectives are developed and prioritized.
- Instructional resources and teaching activities are identified, matched to objectives and student developmental levels and recorded in lesson plans. Alternative resources and activities are identified, especially for priority objectives.
- Resources and teaching activities are reviewed for content and appropriateness and are modified according to experience to increase their effectiveness in helping students learn.

1.4 Instruction is clear and focused.

- Lesson activities are previewed; clear written and verbal directions are given; key points and instructions are repeated; student understanding is checked.
- Students have plenty of opportunity for guided and independent practice with new concepts and skills.

1.5 Learning progress is monitored closely.

- Teachers frequently monitor student learning, both formally and informally.
- Regular, focused reviews of key concepts and skills are used throughout the year to check on and strengthen student retention.

Situation

Pine Butte Elementary School is located in Colstrip, Montana, a town with a population of approximately 4,300 now, following a peak of approximately 8,000 during the five-year construction of a huge Montana Electric Company coal-burning power plant in the early 1980s. The influx of construction workers, plant personnel, and their families resulted in rapid expansion in the school

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School Improvement Program

district. Prior to plant construction, the district included one school building and now includes four: two elementary schools (K-5), a middle school (6-8), and a high school. While construction workers have left the area, plant workers now form a significant portion of the district population, which also includes ranch and farm families and American Indians, primarily from the nearby Northern Cheyenne Reservation. There is a strong tax base in the district, among the highest in the state; this status may be affected by efforts now under way in Montana to equalize school funding.

The curriculum is articulated across the district for grades K-12, and is outcome based. Objectives have been identified for all content areas, and curricula have been developed based on these objectives. Locally developed criterion-referenced tests are used in language arts, math, science and social studies to measure student performance annually in grades K-12. Standardized tests are also used to measure progress through units in particular content areas.

There are 342 students attending Pine Butte Elmentary School in grades K-5, forty-two percent of them American Indian children. The staff includes twenty certified classroom teachers, eight specialists, and eight aides. Class size is small, between sixteen and twenty-three students. There is an effort across the school to improve student performance in the academic areas and a current emphasis on higher-order thinking skills.

Context

Pine Butte emphasizes whole group instruction in its reading program. Classes of students are moved through the reading objectives as a group, with teachers and aides helping students who are slower to master particular objectives and providing supplementary learning opportunities for those who more quickly reach objectives. Objectives are tied to a basal reading series, and teachers lead the students through the curriculum as they work through the reading series.

A majority of teachers in the school are now supplementing reading instruction with a literature-based reading approach wherein individual children select, read and discuss books from the school's library. This approach has been very well received by the teachers who have voluntarily implemented it, and it has been successfully used with students at all grade levels in the school.

The literature-based reading approach was first brought to the school by teachers returning from a 1986 conference on programs for gifted and talented students. Initially used by three teachers with full support of the principal, the approach is now being used by three of four teachers of grade two, two of three teachers of grade three, two of four teachers of grade four and both teachers of grade five. Growth of use of the program has resulted from teachers' interest and voluntary application of the approach in their classrooms.

Teachers can apply the approach in a variety of ways. All students can be involved in literature-based reading after they complete their daily work, or all students can use their books for the reading period one day each week. In other applications, all students can use books for reading for a set period of time (a quarter, a month), or the teacher can use this approach only with students who have mastered the objectives in the flow chart. Some teachers use combinations of these applications.

All teachers are, however, following the approach and implementing major program components. Typically, the program is introduced using a story (or stories) from the basal reader. First, the teacher introduces the concept of the "literature wheel," a pie-shaped chart identifying various types of literature. This helps students understand the wide variety of books available to them and leads to familiarity with such literary terms as fiction, nonfiction, biography, fantasy and others.

Next, the group of students is introduced to three major components of literature: plot, character, and setting. Still using the story, students learn to identify and describe what happens, who is involved, and the situation place, and time of the action.

As the group progresses through the story, students complete an exercise to consider and describe predictions about what is going to happen in the story. These predictions are written down and used later for discussion of the story. The students are also taught to formulate, write down, and provide answers to comprehension questions -- questions that

delve into the plot, character, and setting -- to demonstrate that they understand the content of the story. As a final assignment while reading through the story, students are required to identify and write down vocabulary words -- words that are new or unclear.

Once the story has been completed, students then individually select an activity to complete, choosing the specific task they will do to confirm their understanding of the story content. These activities can be widely varied and may include:

Plot

- Mapping: drawing a series of pictures of key elements of the story in the proper order
- Collage: photos, magazine clippings, headlines or other items that demonstrate the story plot
- Folded sequence: a sheet of paper folded into thirds, one picture on each third of the paper demonstrating, in order, the introduction, climax and conclusion of the story
- Timeline: a linear chart in time increments (hours, days, weeks, etc.) indicating key actions in the plot
- Cartoon strip: a sequence of drawings similar to a newspaper cartoon

Character

- Mobile: a mobile of descriptive words about the main character
- Creative dramatics: the student comes to class in costume as the character, makes a presentation about who the character is and what happens to the character, and answers questions from the class about the story
- Diary: rewriting the story in the first person from the character's point of view

Setting

- Diorama: a three-dimensional depiction of the setting in the story
- Poster: a large drawing of the place where the action takes place
- Maps: the geographical setting and the route characters take in the story

Students are allowed to choose one activity to complete. Teachers make sure that students understand all tasks so they can make the selection and then continue to work with the students to assure that activities are successfully completed.

After the program components are taught to the students, the teacher then begins the literature-based approach. The group-based reading instruction is then supplemented by individualization as students apply the techniques they learned with the story. First, the teacher reteaches the "literature wheel" and creates individual literature files for each student. Depending on the grade level, files may contain, among other items:

- Record sheets to keep track of the student's progress through the program steps with each book selected
- Prediction sheets for recording predictions for each book
- Vocabularly lists to record new words, the sentences in which they were used, and their definitions
- Comprehension question sheet to record comprehension questions
- Comprehension question answer sheets to record answers
- Reading logs to record dates and number of pages read for students to mark progress as they read the book

These files become the recordkeeping system for the program.

Students then select the book they will read, either from a prescribed reading list or by exploring library shelves. The school librarian is actively involved in the program and works with classes as they come to choose their literature.

After looking through the book and examining the cover, students fill in prediction sheets

about the book. Then, in whatever configuration the teacher has elected to use, the students proceed to read their books. In classrooms where students read their books one reading period per week, students are expected to read one book per quarter; in those where students are exclusively focusing on literature, they are typically expected to read at least one book per month.

As students reach the mid-point in their books, they are responsible for arranging for mid-conferences with the teacher; these are individual meetings to discuss progress. Teachers query students on structure, characters, predictions and vocabulary. Students at this point select the activities they will complete for this particular book.

Students then finish reading the books and meet again with teachers in a post-conference. Once again, predictions, vocabulary and comprehension questions are discussed, and arrangements are made for completion of the activities. Grading systems vary, but it is typical that the literature-based reading becomes as much as one-third of the individual student's reading grade.

The program has been very successful in the school. Students' motivation has increased, and they no longer need to be forced to read. They are more involved in reading, and their comprehension skills are much more advanced. While test scores have shown no dramatic trends over the past five years, there has been steady increase in learning skills for students as they progress through the grades. Most importantly, American Indian students are succeeding as well in this approach as other students.

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Example: Plot Mapping

A second grade class of approximately 18 students is learning the technique of plot mapping using a short story from the basal reader. This is their first introduction to the technique, which they will later use as they read books.

In guided, silent reading, the students all read the story, a tale of friends Frog and Toad. Then, in discussion of the plot, setting, and character, the class together selects a sequence of six major events in the story.

The teacher then explains that in a plot map each student will draw pictures in circles on a large sheet of paper to demonstrate these six key events in the story. Students all get out drawing materials and all draw and number the six circles in the same order.

The teacher then leads a discussion of how best to illustrate these elements of the story: how to differentiate between Frog (green) and Toad (brown), how to show the grass (vertical green lines) versus the forest (brown trunks, green leaves), etc.

Using the six plot elements outlined and featuring characters and settings, students draw six pictures in the circles. The resultant drawings are all very similar, and students now understand what a plot map is.

Example: Book Selection

A third grade class has learned the elements of the approach and students are now ready to select their first book. The teacher asks them to get their literature folders out and take out the list of recommended books. They read through the titles and circle several books that sound interesting.

The teacher then reviews the "five-finger rule," a technique whereby students judge for themselves if the books they select are appropriate to their own reading level. Students recall that they are to open to book to any page and read, holding up all five fingers on one hand. Every time they find a word that is too hard for them on that page, one finger goes down. If they put all five fingers down on the same page, they must then exchange the book and find another that is not so difficult. The review is completed with a discussion of how they use the card catalog.

Students line up and go to the library, book lists in hand. At the library, they go to the card file and look up, then locate their books. They find seats with their books and proceed with the "five finger rule," some returning books to the librarian and getting another. Every student checks out a book.

The students return to the classroom with their books and examine them, speculating on what the books might be about and filling out prediction sheets. They then begin reading the books.

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Effective Practices in Place: Snapshot #10

Creative Staffing Arrangements: Lynch Wood Elementary School and Mukilteo School District

Kathleen Cotton

Research Findings

What are the major research findings regarding school and district practices for improving instruction through innovative staffing arrangements? Because of the relationships between staffing and such elements as monitoring, grouping, leadership, and allocating time, research findings in these areas bear upon efforts to use staff more creatively. *Effective Schooling Practices: A Research Synthesis* (Northwest Regional Educational Laboratory 1984) identifies relevant findings in several areas:

At the **classroom** level:

1.5 Learning progress is monitored closely.

- Teachers use assessment results not only to evaluate students but also for instructional diagnosis and to find out if teaching methods are working.

1.9 Instructional groups formed in the classroom fit instructional needs.

- Smaller groups are formed within the classroom as needed to make sure all students learn thoroughly. Students are placed according to individual achievement levels; underplacement is avoided.
- Teachers review and adjust groups often, moving students when achievement levels change.

At the **school** level:

2.2 Strong leadership guides the instructional program.

- The leader has a clear understanding of the school's mission and is able to state it in direct, concrete terms. Instructional focus is established that unifies staff. The building leadership believes that all students can learn and that the school makes the difference between success and failure.

2.4 Students are grouped to promote effective instruction.

- Instructional aides and classroom grouping techniques are used to help keep the adult/student ratio low, especially during instruction aimed at priority objectives.

2.5 School time is used for learning.

- School events are scheduled to avoid disruption of learning time.
- Student pullouts from regular classes are minimized, either for academic or non-academic purposes. The amount of pullout activity is monitored and corrective action taken as necessary to keep things in balance.

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School Improvement Program

At the **district** level:

3.4 Improvement efforts are monitored and supported.

- District supervisors monitor implementation of policies and procedures in individual schools; they provide advice, clarifications, technical feedback and channel support services. In particular, they check on the progress of improvement efforts.

- Instructional support services assist local schools in their improvement efforts. Support staff provide consultation, materials development and training assistance on call; support services are very responsive to expressed building needs.

Lynch Wood Elementary School

Situation

Lynch Wood Elementary School is a K-6 facility in the Centennial School District in southeast Portland, Oregon. The Centennial district serves approximately 4,700 students in one high school, one middle school, and six elementary buildings. Lynch Wood serves 520 students, 150 of whom receive free or reduced lunches. The student population is nearly all white. Fully three-quarters of the families in the Lynch Wood attendance area are renters, and there is a high transiency rate -- 32 percent annually.

Context

During the 1985-86 school year Lynch Wood began participating in the Onward to Excellence (OTE) program of school improvement. In keeping with the structure of the OTE program, principal Al Doan and the Lynch Wood leadership team studied effective schooling research, reviewed current school performance, and established goals and implementation guidelines to address identified needs.

Lynch Wood's initial school improvement goal was to raise the reading performance of Lynch Wood students, 40 percent of whom were reading below grade level. Needed curriculum and instructional changes were specified, but leadership team members quickly realized that achieving desired outcomes was going to require that staff be utilized differently than in the past.

Traditional reading instruction, in which the teacher spends perhaps 20 minutes with each of three groups, was viewed as an inadequate structure for producing meaningful gains. More than 20 minutes of direct instructional time per student needed to be made available. But where were the extra staff to come from?

Doan and the leadership team studied the ways in which regular classroom teachers, special education teachers, Chapter 1 teachers, and aides were used. They then designed a system to use these staff more effectively -- a system which also called for structural and scheduling changes.

A large doorway was cut in the wall between the Chapter 1 and special education resource rooms --a literal and symbolic breaking down of the barriers between programs -- and the new, larger area was renamed the Learning Center. Now, during first and second grade reading periods, all classroom, special education, and Chapter 1 teachers, plus the instructional assistants (aides) supported by categorial program funds, engage in 45 minutes of direct reading instruction.

Figure 1 displays the manner in which staff are utilized to serve three classes of second graders during reading instruction. The three classroom teachers ("Ts") normally work with groups of fifteen in their regular classrooms, while the categorical program teachers and aides work with small groups of students in several different work areas in the Learning Center. Sometimes, though, regular and Learning Center groups change places, in Doan's words, "to keep them confused" -- that is, to make certain there will be no stigma associated with attending Learning Center classes.

No administrative matters or other interruptions are permitted during the 45 minutes of direct instructional time students spend in their small groups. Following this direct instruction period, children regroup in their regular classrooms to engage in practice, reteaching, or enrichment, as specified by the teacher.

IMPROVED READING GROUPS
EXAMPLE: THREE SECOND GRADES

Instructors:	T	T	T	Ch1	Asst.	Sp. Ed.	Asst.	Ch1	Asst.
Students:	15	15	15	7	8	8	7	6	4

Figure 1

In this model, students are grouped by need rather than funding source. All reading program staff receive inservice training to utilize the school's chosen reading program content and instructional strategies, which include a strong phonics component. Student diagnosis and instructional prescriptions are the responsibility of certified teachers who cooperatively plan presentations, materials, methods, modes, groupings and reinforcement, and coordinate the instructional activities of the aides. Initial placements are negotiated by teachers, with decisions made by the principal in cases where there is disagreement. The boundaries between groups are very fluid, with teachers conducting monthly reviews and frequently reassigning students as needs change. Students may also challenge their placement and move among groups.

While some of the special education and Chapter 1 staff work with students in the Learning Center, others work with their small groups in specified locations in the regular classroom. The preferences of regular and special program staff determine whether the in-class or resource room model is used.

Lynch Wood staff and parents are extremely pleased with the effects produced by this staffing pattern. For one thing, the greatly reduced student-teacher ratio has increased the amount of direct instructional time by over 200 percent. For another, only nine percent of Lynch Wood's students are now in the lowest quartile of the reading portion of the California Achievement Test. In addition, there are far fewer behavioral problems: placements are more appropriate, and thus there are fewer instances of acting out in response to frustration.

Another outcome about which Lynch Wood administrators and staff are especially gratified is the dramatic reduction in the number of referrals for special education staffings -- from fifty to ten in a year's time.

The staffing arrangement also greatly reduces the time required for transfer students to begin receiving appropriate services. Instead of the laborious and time-consuming referral process previously used, students are put through a quick screening procedure, and the classroom teacher negotiates initial placement immediately with a Learning Center teacher.

Finally, the reading program structure avoids the problem of students being labeled and also permits the aides to feel fully a part of the instructional team.

What do categorical program monitors think about this way of using staff? Chapter 1, special education, and other federal program regulations specify -- and program monitors usually rigidly enforce -- a strict separation of program resources in order to prevent abuses. If program services are comingled, the reasoning goes, then funds will be comingled, too; and then we will lose track of whether special education resources are truly reaching special education students, Chapter 1 resources are reaching Chapter 1 students, and so on.

In the earlier days of program implementation, Lynch Wood was threatened with withdrawal of its Chapter 1 funding if non-Chapter 1 students continued to receive services from Chapter 1 staff. And there have been criticisms leveled at the practice of using noncertified staff (i.e., aides) to provide direct instruction.

Doan and his staff have found a variety of ways to continue Lynch Wood's effective staffing pattern, while also staying in compliance with categorical program guidelines. For example, although Chapter 1 guidelines

specify that students must be performing below grade level to be eligible for services, the individual school is at liberty to determine what "grade level" is, based upon internal reviews.

Guidelines also provide for other kinds of flexibility, e.g., non-special education students can receive special education services if they are under a monitoring system. Moreover, it is within federal guidelines for the Individualized Educational Plans (IEPs) of special education students to specify that the students will receive Chapter 1 services.

As for the appropriateness of instructional assistants delivering direct instruction services, Doan points out that these staff members are closely supervised by Learning Center teachers, their decision-making power is limited, and therefore their provision of direct instructional activities should not be construed as encroaching on the territory of certified staff members.

Thus far, Doan and his staff have been able to satisfy program monitors that Lynch Wood's approach meets the letter and the spirit of categorical program regulations.

Future aspirations of Lynch Wood staff include expanding services to include upper elementary students and working to increase the percentage of students in the top quartile of the CAT reading subtest.

Practice: Creative Use of Staff in an Elementary Learning Center

Comprised of two classrooms with a large doorway between them, the Lynch Wood Learning Center is divided by bookshelves and screens into several small group work areas. The observation took place in mid-October, and the center was resplendent with an array of autumn and Halloween decorations made by the students.

Approximately fifty children -- most of them first graders -- were receiving phonics instruction in groups of four to eight. Daily performance charts on the walls provide opportunities for children to receive symbolic rewards for their learning successes.

Some of the activities conducted by the teachers and aides called for group responses, while others elicited individual responses from children. Children appeared interested and eager during the learning session, responding enthusiastically when asked to read and sound out words.

In a storeroom adjacent to the Learning Center a small group of third, fourth and fifth graders, whose reading skills were far below grade level, were receiving remedial instruction.

Both teachers and aides were instructing children according to prescriptions previously determined by the teachers, and teachers -- classroom and special -- were also responsible for determining group placement. Observing the small group instructional sessions, however, it was impossible to tell how children were classified or whether a given instructor was a teacher or an aide. This, in Al Doan's view, is one of the strengths of the program.

For more information, contact Al Doan, Principal, Lynch Wood Elementary School, 3615 SE 174th Street, Portland, OR 97236, (503) 251-2204.

Mukilteo School District

Situation

The Mukilteo School District is located in Everett, Washington on Puget Sound about 20 miles north of Seattle. The district serves approximately 8,000 students in eight elementary schools, two junior high schools, one high school, and an alternative school. District families range from the lower-income residents living in multiple-unit dwellings along Highway 99 to the well-to-do families occupying homes along the sound. Part of the district is in a "high-tech" corridor, which includes Hewlitt-Packard, Honeywell, Boeing and several other companies. The Mukilteo student population is approximately eighty-five percent white, six percent Asian, one percent black, and eight percent Hispanic, Native American and other minority groups. Mukilteo is a fast-growing district, having increased by thirteen percent in 1987-88 and another seven percent as of November 1988.

Context

When an entire school district launches an innovative staffing approach such as Lynch Wood's, both the benefits and the difficulties increase. Staff of the Mukilteo School District have become intimately familiar with these benefits and difficulties since they began their Learning Support Program in the 1982-83 school year.

Like Lynch Wood's program, the Mukilteo program was developed to increase services to students needing help beyond that available in their regular classrooms. The district has Chapter 1 programs in many of its buildings, as well as special education, a transitional/ bilingual program, Chapter 2, and the state Learning Assistance Program for remediation in grades K-9. With the advent of the new program, a Learning Support Center was established in each of the district's eleven buildings, and students eligible for services under the various categorical programs began being grouped and served by need rather than program category.

Each Learning Support Center is coordinated by a teacher who is special education certified and therefore authorized to teach any student; these teachers are regarded as basic education teachers when teaching non-special education students. The district also employs one school psychologist per building. Titled Learning Support Specialists, these individuals work directly with students and building staff, spending much less time conducting assessments and making referrals than traditional psychologists. This greatly reduces the time it takes for students to begin receiving appropriate services.

The Learning Support Centers are staffed by aides who are supported by categorical program funds and who provide instruction to students under the direction of the LSC teacher. Students receive 20-45 minutes of instruction daily, in each subject for which they are eligible. These services are agreed upon by the regular classroom teacher and LSC teacher.

The model allows for short-term, intensive, homogeneous grouping based on student need. As with Lynch Wood's program, placements are reviewed frequently and students move among groups -- or out of them altogether -- based upon changes in performance.

Although the Learning Support Program is a districtwide program, it is left to each building to determine how services will be structured. Models range from limited pull-out to in-class instruction, with an increasing move toward the use of in-class models at the elementary level. The district informs principals of the allowable amount of aide time within each program category; principals then hire accordingly and decide with their staffs which services will be delivered in the LSC and which will be provided in students' regular classrooms.

The Learning Support Program has allowed the district to double the number of students served through the categorical programs and to triple the amount of direct instructional time provided to each student receiving services. Non-program students also benefit, since program students' departure to the LSC or a designated corner of the classroom appreciably reduces regular class size.

The academic growth of Learning Support Program students compares favorably with that of categorical program students in other Washington districts, and NCE gains are similar across students from different program categories. District and building staff are very pleased with the program, as are the parents of participating students. Students themselves like the program, and LSC staff are constantly receiving requests from students without special academic needs to be able to attend LSC classes. There is no stigma attached to attending classes in the LSC, nor are the students receiving in-class services treated differently by their classmates. Aides working in regular classrooms will sometimes comment on the work of other program students or answer their questions so that all children in a class will regard both the regular teacher and the aide as being "their" teachers.

Al Doan's one-school program of comingled categorical services has thus far managed to operate with a minimum of negative response from program monitors. Mukilteo's program is much larger and more visible, and has therefore experienced more conflict with the

monitors of categorical programs. "...the strings attached to categorical funds emphasize fiscal accountability, not program effectiveness," states a June 1987 *Phi Delta Kappan* article written by Mukilteo School District staff.*

The regulations governing the operation of Chapter 1 and other categorical programs are, to a considerable degree, open to interpretation. Mukilteo staff argue that state and federal officials often interpret these regulations in narrow and restrictive ways that discourage cooperative programs. Meanwhile, these fiscal monitors remain very concerned that categorical program monies go to serve the students they are intended to serve, and that the district provide thorough documentation of its spending.

Therefore, to be able to continue its highly successful Learning Support Program, Mukilteo staff have developed and implemented an elaborate, computerized tracking system to satisfy the accountability requirements of categorical program monitors.

A detailed description of the system and of "Homer," the computer program used to manage it, is outside the scope of this report. Basically, the system involves scrupulous recordkeeping regarding the time expended by each Learning Support Program staff member in each program category. Tracking forms are used to chart each person's chargeable time. Individual and building summaries are compiled, and the records for each school quarter are used to determine how payroll should be handled for the next quarter. The next quarter's records are then used to make needed adjustments, thus assuring that charges against program funds are a near-perfect match with actual service delivery.

A VAX 750 computer is used to process tracking system data, issue reports, and make payroll determinations. (The tracking program can also be run on an MS DOS machine.) Since the computer is connected by telephone to all schools in the district, LSC staff enter relevant program data for their school. The reports produced through use of the tracking system satisfy state monitors' requirements for accountability data, and the Mukilteo district is thus able to continue operating the Learning Support Program.

Since the tracking system is laborious, and because Mukilteo staff believe that Learning Support Program operations meet categorical program guidelines without such elaborate recordkeeping, efforts continue to influence monitors to take a broader view of the intent of the regulations governing programs. As a result of Mukilteo's efforts and the efforts of other districts employing innovative staffing arrangements, there is increasing discussion at the federal level about simplifying fiscal accountability requirements. Mukilteo staff hope this movement will eventually result in the district being able to dismantle its current tracking system in favor of a more streamlined one.

For the present, Mukilteo staff find their current system cumbersome, but worth it, because of the increased service provisions made possible through the Learning Support Program. Asked about what advice they might give to others considering setting up such a program, staff members from the Mukilteo central office offered the following:

- You need to know the regulations governing categorical programs as well as or better than the monitors know them.
- You need to be aware that there are different ways to meet the intent of the law and be prepared to argue for those ways that keep program operations feasible.
- You will probably need technical support for recordkeeping, since requirements are so extensive.
- You need to realize that district staff members who are responsible for managing different categorical programs are likely to be territorial about their programs and resistant to program coopera-

*Norm Felix, Forest Hertlein, David McKenna, and Robert Rayborn. "Combining Categorical Program Services Can Make a Major Difference." *Phi Delta Kappan* 10 (1987): 787-788.

tion. They must be given time and encouragement if they are to become willing to work together.

Practice: The Mukilteo Learning Support Program

Visits to Challenger and Stickney Elementary Schools provided an instructive contrast in ways the Learning Support Program is structured in different buildings.

Challenger makes extensive use of a limited pull-out model, i.e., most program instruction takes place in the Learning Support Center. At the time of the observation, some 50 primary-age children were receiving language arts instruction in groups of no more than six. Eight groups were in session in the spacious, two-room center. A typical group was made up of students who are eligible for various programs. Most were working on reading subskills, and the activities with which they were involved called for a combination of choral and individual responses. Aides appeared skillful at holding children's attention and keeping them engaged in the tasks at hand.

A brief interview with one of the Challenger LSC aides revealed that she has been working in that capacity for about a year and likes working with small groups of children, because more rapid progress is possible than in larger groups. This aide was aware of the classification of some of the children in her current groups (e.g., learning disabled, Chapter 1, etc.), but emphasized that instruction was based on each child's current need, not his or her classification.

In the course of the conversation with the aide and some of the central office staff, it was revealed that many of the LSC aides throughout the district are certified teachers or retired teachers who work as aides out of preference for the intensive, small-group format.

A short drive to Stickney Elementary School provided an opportunity to see the in-class model of the Learning Support Program in action. Except for a special education group, all program instruction is conducted in students' regular classes. The LSC teacher for the building and a member of the central office staff explained program operations and conducted a tour of various classrooms in which Learning Support Program groups were meeting. The tour included observations of:

- A group of first graders engaged in a writing activity. As the teacher oriented the children to the activity, the aide could be observed listening carefully so as to guide her group through the exercise.

- A group of first graders in a math activity. After the teacher orientation, the aide bagan working with a group of six at a semicircular table.

- A group of fifth graders -- two of whom are on IEPs -- working on math problems while an aide took them through problem-solving steps, displaying these on a blackboard. As in classes throughout the school, initial instruction was provided by the teacher; then monitoring and reinforcement activities were conducted by the aide.

- A group of sixth graders working on a spelling unit with an aide. This instruction took place in a storeroom adjacent to the regular classroom.

- A sixth grade classroom in which the teacher was working with a group of Learning Support students while the aide circulated during a seatwork activity of the rest of the class, giving particular attention to Learning Support Program students.

- A small group of Hispanic and Native American students working with a bilingual aide.

The Stickney LSC teacher described her role, indicating that her responsibilities include training aides by demonstrating skills and critiquing them as needed, coordinating instruction with teachers and aides, and making certain that aides are being used for *instruction* -- not just to clean up, prepare materials, etc. Part of her training efforts include teaching aides to provide activities using a variety of instructional strategies.

Screening of new students at Stickney is typical of the rapid assessment/placement

process throughout the district. The school's goal is to get new students into a reasonably appropriate placement within two days; then more in-depth assessment can take place if necessary while the student pursues relevant learning activities.

More information about the Learning Support Program is available from Robert Rayborn, Director of Planning and Evaluation, Mukilteo School District No. 8, 9401 Sharon Drive, Everett, WA 98204, (206) 356-1260.

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School Improvement Research Series

Effective Practices in Place: Snapshot #11

Critical Thinking Across the Curriculum: Aloha High School

Kathleen Cotton

Research Findings

In order for students to develop skill in critical thinking, several elements of classroom and schoolwide climate and practice need to be present. According to *Effective Schooling Practices: A Research Synthesis* (Northwest Regional Educational Laboratory 1984), these include:

At the **classroom** level:

1.2 There are high expectations for student learning.

- Teachers set high standards for learning and let students know they are all expected to meet them. Standards are set so they are both challenging and attainable.

1.3 Students are carefully oriented to lessons.

- Teachers help students get ready to learn. They explain lesson objectives in simple, everyday language and refer to them throughout lessons to maintain focus.

- Objectives may be posted or handed out to help students keep a sense of direction. Teachers check to see that objectives are understood.

- The relationship of a current lesson to previous study is described. Students are reminded of key concepts or skills previously covered.

- Students are challenged to learn, particularly at the start of difficult lessons. Students know in advance what's expected and are ready to learn.

At the **school** level:

2.8 There are high expectations for quality instruction.

- All staff believe that students can learn regardless of their ability level and enthusiastically accept the challenge to teach them. When staff get together they often discuss instructional issues.

- Staff development opportunities are provided; emphasis is on skill building; content addresses key instructional issues and priorities. Inservice activities are related to and build on each other; incentives encourage participation.

2.11 Teachers and administrators continually strive to improve instructional effectiveness.

- Throughout the school there is an ongoing concern for improving instructional effectiveness. No one is complacent about student achieve-

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School Improvement Program

ment; there is an expectation that educational programs will be changed so that they work better.

- School improvements are directed at clearly-defined student achievement and/or social behavior problems; strong agreement is developed within the school concerning the purpose of improvement efforts.

- Priority goals for improvement are set which give focus to planning and implementation. Goals which specify desired changes in achievement or social behavior are known and supported in the school community.

Situation

Located in a predominantly suburban area southwest of Portland, Oregon, Aloha High School is one of three high schools in the Beaverton School District and serves 1,530 students in grades ten, eleven, and twelve.

The Beaverton district is large; over 22,000 students attend school in 35 buildings. In this "bedroom community," nearly all students are white/non-Hispanic, and income levels are moderate to upper middle class. There is a wide variety of businesses and industrial complexes in the Beaverton area, including such high-tech companies as Intel and Tektronix.

Context

Aloha High School is a participant in the Onward to Excellence school improvement process — a process in which school leadership teams compile profiles of school performance, and school staff select improvement goals based on the information in the profiles. Staff then develop research-based prescriptions and plans to achieve the goals selected, implement plans, and continue to monitor improvement activities as work toward the goals proceeds.

When reviewing their school profile two years ago, Aloha staff determined that students were not exhibiting a desirable level of skill in critical thinking. Following a review process, they designated *the improvement of student achievement through the development of critical thinking skills* as their schoolwide goal. Staff also came to several other agreements, including:

- A working definition of critical thinking as the reasoning, reflection and creativity that produces a decision, action, or belief

- A decision to focus on the explicit thinking skill model, with emphasis on the clusters of attributing, sequencing, analysis, and inference

- A conviction, based on a review of research, that certain teaching strategies elicit critical thinking on the part of students; thus, the implementation plan places emphasis on *teaching strategies* rather than instruction in explicit skills

- A decision to focus initially on four strategies — New American Lecture, wait-time, Writing to Learn, and questioning.

The approach chosen by Aloha staff to improve students' critical thinking skills involves staff training and follow-up activities in the instructional strategies identified above. It is also important to Aloha staff that the school's critical thinking program be integrated into the curriculum rather than being an "add-on" component, and that it be integrated into all courses — not only those usually thought of as "academic." Thus, the staff development approach chosen needed to be compatible with these goals.

Aloha's school improvement leadership team began by engaging the services of Richard Strong of the consulting firm of Hansen, Silver, and Strong. Strong is the developer of an instructional approach called the New American Lecture (NAL), major features of which include:

- Using "advance organizers" — blank charts, grids, flowcharts, and the like, which can be used by teachers and students to record information from a lecture or a text

- Actively involving students — gaining participation of all students during the interactive portions of lessons, e.g., getting them to share ideas with a partner, respond to a directive, etc.

- Asking questions or assigning brief activities — conducting these activities every five to seven minutes and including questions from the four quadrants in the NAL questioning/thinking styles matrix: mastery, understanding, synthesis and involvement

Briefly, *mastery* questions are those calling for knowledge of content; *understanding* questions call for interpretation, comparison/contrast, or summarizing; *synthesis* questions ask the student to draw upon content knowledge in considering a hypothetical situation; and *involvement* questions place the student in a particular circumstance and call upon his/her knowledge to explain a preference, defend a position, and so on. It can readily be seen that these kinds of questions call for different degrees of higher cognitive or critical thinking.

Staff have also received instruction in increasing wait-time. Research shows that when teachers are willing to wait several seconds for a student to respond after asking a question, improvements in the quantity and quality of student responses result.* Making teachers aware of the beneficial effects of increased wait-time and ongoingly encouraging increases in wait-time, are important components of Aloha's staff development program.

Writing to Learn is another basic element. Teachers are trained to engage students in brief writing exercises during classes in order to firm up their understanding of the concepts or skills just presented.

Aloha uses a training of trainers model in its staff development program. Consultants work intensively with the school's department heads and peer coaching participants on one or two instructional strategies at a time. These participants then work with other staff to implement strategies in classrooms. Thirty-two of Aloha's 87 certified staff members have now received in-depth training in critical thinking instructional strategies.

One of Aloha's goals is to build teacher self-esteem through an approach to staff development which empowers teachers by enabling them to meet the learning style needs of different students. This, too, is in keeping with the goals envisioned by the school improvement committee, and the peer coaching component of the program is a major element in building self-esteem through increasing competence.

Peer coaching participants, along with school improvement committee members and department heads, receive in-depth training in instructional strategies related to critical thinking. They also receive training in the specifics of coaching one another. Peer coaches work in pairs, trios, quartets or even larger groups, visiting one another's classes, learning from what they observe, and giving one another suggestions for improvement. They may make as few as four visits per year or as many as eight or nine.

Asked about the value of peer coaching to their success in implementing critical thinking instructional strategies, participants say that it increases communication, reinforces learning provided in inservice sessions, and increases the likelihood that knowledge and skills will be shared. They also note that participation in peer coaching has brought about an increase in lunchtime and other out-of-class discussions about how to improve instructional strategies.

School improvement committee members recognized from the start that ongoing evaluation would be an important aspect of Aloha's critical thinking skills program. Accordingly, Aloha staff developed an evaluation plan and has now conducted two annual evaluations. Highlights from the 1987-88 evaluation report include:

- Review and initial administration of the locally developed Assessment of Critical Thinking Skills Test indicate that this test will be useful for assessing growth in critical thinking skills in the future.

- Student interview results reveal a high degree of recognition on the part of students of key features of critical thinking teaching strategies implemented in their classes.

- Classroom observations indicate that many teachers were engaging in obvious, easily recognizable examples of critical

*See the *School Improvement Research Series* report, *Close-Up #5: Classroom Questioning.*

thinking instructional strategies, i.e., New American Lecture, Writing to Learn, and increased wait-time.

- A staff survey revealed a high incidence of usage of the strategies, as did an English department assessment of their frequency of usage.

Practice: Critical Thinking Instructional Strategies

LANGUAGE SKILLS

A visit to a tenth grade Language Skills class allowed observation of methods used to teach the difference between dependent and independent clauses. The teacher and students were engaged in a question-and-answer session, with questions sometimes addressed to the whole class and sometimes to individuals by name. Different kinds of clauses were displayed on overhead transparencies and students were asked to analyze these, breaking them down into component parts.

The teacher was very animated in his manner, bringing life to the often static subject of grammar. He allowed plenty of wait-time, gave brief praise for correct responses and, when responses were incorrect, called on another student, saying, for example, "Jane, help Stephen out." Throughout the lesson the teacher continued to repeat major points while providing guided practice.

FOODS

A class of tenth graders were given a New American Lecture on the different kinds of pies (custard, fruit, meat, etc.), after which they were asked to complete an organizer chart on the making of pie crust. The experience of the teacher (who also teaches Personal Finance) is that the use of organizers as a structure for note-taking increases the likelihood that students will actually read assigned material and take notes.

Asked about the usefulness of organizers, students in the class made the following comments: "It's easier to remember." "It comes back to you later." "They get you organized. You're not just scrambling around in your notes to remember where the next point is." "They put things in order."

CHEMISTRY

Students in a chemistry class were asked to read one of the chapters from their text in class, because it contains particularly difficult concepts. A sheet of "focus questions" was passed out to guide students' study of the material. The questions asked students to answer "true" or "false" to each of a series of statements and then to write out their reasons for answering as they did.

While students were reading the chapter, the teacher moved about the room, checking their work and offering help as needed.

ENGLISH LITERATURE

The teacher and students in this class were engaged in a discussion of a Shakespearean sonnet. The teacher allowed generous amounts of wait-time to encourage student responses, and this approach seemed to elicit more thoughtful answers than would be likely in a fast-paced question-and-answer session.

The teacher sought to convey the meaning of images from the poem in a variety of ways — gesturing, drawing on the blackboard, calling for students to make connections ("True love is to us as what is to the sailor?"). The teacher reminded students about the need to defend their interpretations by offering evidence from the poem to substantiate their views. While obviously finding the poem puzzling, students appeared very willing to speculate about its meaning and keep working at understanding it.

ALGEBRA II

Major elements of the New American Lecture format were apparent in the instruction delivered in this class. Verbal and written steps needed to solve a series of problems were provided. During guided practice, the teacher continued to remind students of the principles involved in solving this type of problem. Overhead transparencies were used to work through problems with students, calling for answers from them and inviting them to note which previously worked problems were similar. In discussing his ap-

proach, the teacher said that he characteristically works through several problems by way of demonstration, comparing and contrasting the types of problems, and focusing on the mechanics of problem solving while demonstrating steps toward solution.

Those desiring more information about Aloha's program may contact Sue Tarrant-Berg, Principal, Aloha High School, PO Box 200, Beaverton, OR 97075, (503) 591-8000.

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School Improvement Research Series

Effective Practices in Place: Snapshot #12

Parent Involvement: Spring Glen Elementary School

Kathleen Cotton

Research Findings

Research clearly demonstrates that parents' involvement in their children's education is positively related to student achievement and affective outcomes such as attitutes toward school. The Northwest Regional Educational Laboratory's 1984 document, *Effective Schooling Practices: A Research Synthesis* identifies elements related to parent involvement which are present in effective schools.

At the **classroom** level:

1.5 Learning progress is monitored closely.

- Teachers encourage parents to keep track of student progress, too.

1.12 Incentives and rewards for students are used to promote excellence.

- Parents are told about student successes and requested to help students keep working toward excellence.

At the **school** level:

2.10 Parents are invited to become involved.

- Parents have various options for becoming involved in schooling, especially in ways that support the instructional program.
- Procedures for involvement are clearly communicated to parents and used consistently.
- Staff members provide parents with information and techniques for helping students learn (e.g., training sessions, handbooks).

Readers of this snapshot are encouraged to review the research summary document, *Parent Involvement in Education*, which is also a part of this *School Improvement Research Series*.

Situation

Spring Glen Elementary School is located thirteen miles southeast of downtown Seattle and is one of twenty elementary schools in the Kent School District. The Kent district also has three high schools, one continuation school serving junior and senior high students, and five junior high schools. The district serves a total of 19,000 students.

Approximately 400 students in grades K-6 are enrolled at Spring Glen. About 12.5 percent of the students and 15 percent of the staff are of minority racial or ethnic status. Students represent a wide range of socioeconomic levels. A distinctive feature of Spring Glen is that it has a much larger percentage of male staff members than most elementary schools; for example, both kindergarten teachers are men.

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School Improvement Program

Context

Spring Glen is a new school and an alternative school. During the 1986-87 school year, the Kent School District charged five of its principals with the responsibility of designing an alternative elementary curriculum. This curriculum was intended to meet the needs of students whose families desired a nontraditional educational approach or who had not previously been successful in more conventional school settings.

The five principals, including Spring Glen's current principal, Del Morton, designed an instructional program with the following major elements:

- **Whole language instruction.** Spring Glen maintains a strong focus on an integrated curriculum and utilizes principles of whole language instruction as derived from developers in England, Canada, and Australia.

- **Teaching to various learning modalities.** Students are tested to determine their strongest learning modalities, and instruction appropriate to those modalities is provided.

- **Creative staff utilization.** Specialists (physical education, music, librarian, etc.) serve as basic education teachers during the basic skills "block" each morning, thus dramatically reducing the student-teacher ratio.

- **Cooperative learning/heterogeneous grouping.** Students build critical thinking skills and learn teamwork through working in heterogeneous, cooperative learning groups in all grades and all subjects.

The new school and its innovative offerings were publicized before the beginning of the 1987-88 school year. Criteria for prospective staff members were identified, and teachers who felt they met these criteria were invited to apply. At the same time, Morton began providing information about Spring Glen through local newspapers and speeches to community groups to stimulate the interest of parents.

Staff were hired, and Spring Glen acquired a student body from the two groups referenced above. Many were from families who are very involved with their children's schooling, knowledgeable about educational practices, and drawn to such features as cooperative learning and low student-teacher ratios. Others were students who had experienced failure in more traditional school environments and whose families hoped Spring Glen's innovative approaches would make a positive difference. Spring Glen staff say that these two general "types" of students bring different strengths and needs to the school's cooperative learning groups.

Because of Spring Glen's alternative approach to schooling, parents have had an unusually high level of involvement from the beginning. If children go to spring Glen, it is because their families made a conscious choice in favor of the school, not just because they happened to reside in an attendance area. Moreover, many parents had a high level of involvement with their children's schooling before coming to Spring Glen, and thus intended from the beginning to participate in the school's programs.

In addition, Spring Glen's unusual transportation needs require that parents be involved for field trips and other outings taking place during the school day. Sprin Glen is geographically distant from the rest of the Kent School District; in fact, it is technically within the boundaries of the Renton School District and rents its building through a lease agreement with Renton. In order to be able to provide transportation for students, Spring Glen makes use of district buses only after the transportation needs of other Kent schools have been met. Thus, schoc! begins at 10:00 a.m. and ends at 4:00 p.m. at Sprin Glen, and any outings scheduled during the school day are completely dependent on parent drivers. Spring Glen staff happily report that, with the school's high degree of parent interest, there are always adequate numbers of volunteer drivers for these events.

In this 400-student school, fully 260 parents were involved in instructional and noninstructional school activities last year. In addition to providing transportation for school outings, Spring Glen parents are also involved in a variety of other activities through the

school's Parent Partnership program, including:

- **The annual all-school barbeque,** an event for staff, students, immediate and extended family members. The barbeque is held at the very beginning of the school year. It is intended to make Spring Glen families feel welcome and provides opportunities for those families to interact informally with school staff and with each other.

- **The PTA board,** a leadership group with 55 members(!), each of whom has a distinct role and sphere of responsiblity.

- **Serving as parent volunteer facilitators.** Two parents take responsibility for overseeing the volunteer activities of other parents. These facilitators work with the parent involvement coordinator on the Spring Glen staff, and are in charge of such activities as recruiting parents for activities.

- **The parent talent bank.** Spring Glen staff and parent leaders are developing a computerized talent bank to facilitate matching parent skills, preferences, and availability with school needs.

- **Serving as in-classroom volunteers.** Individual teachers and parents negotiate the ways that parents will help out in classrooms.

- **Monitoring student activities on field trips.** The heavy use of parent car pools for field trips also ensures that there are plenty of parents on hand to monitor student activities at field trip sites.

- **Receiving school-related communications through school newsletters.** A newsletter is published for parents of students at each grade level. These newsletters contain "ideas" sections, which provide tips on how parents can support their children's learning at home.

- **The RICH Program.** RICH— Reading Is a Cool Habit — is a parent-operated program in which parents model and encourage good reading habits, students read a specified number of minutes each day, and parents sign forms validating children's reading. RICH program coordinators provide specific directions for encouraging and monitoring children's reading. Children receive symbolic and sometimes tangible rewards for their successes. At the beginning of each year, both children and parents sign contracts agreeing to participate.

- **Reviewing packets of their children's schoolwork sent home weekly.** Teachers send home manilla envelopes of children's work, and parents sign and return a form indicating they have reviewed the materials.

In addition, parents are involved in a great deal of informal communication with teachers, as well as the more formal parent-teacher conferences. Because of the high degree of parent involvement at Spring Glen and the considerable numbers of parents at the school at any given time, principal Del Morton set aside a parent lounge for parents to plan, share, and store supplies for parent-sponsored activities.

Practice: Intensive Parent Involvement

Since a school's parent involvement program can scarcely be observed in an afternoon, it was determined that the best way to get a sense of Spring Glen's program was to interview some of the school's more active parents. These parents were asked how they got involved with Spring Glen; what kind of parent involvement activities they engage in; how they feel about their participation; and how their involvement has influenced their feelings about the school, their children, and themselves.

Mr. and Mrs. C. Mr. and Mrs. C. are parents of a Spring Glen sixth grader. They moved to the area from the midwest two years ago and enrolled their son in a conventional neighborhood school. Their son was not doing well in that school environment, and so the C's were interested when a neighbor told them about Spring Glen. They liked the description they were given of Spring Glen's program and enrolled their son last year. He is doing well and is happy in school, and the C's are pleased with the change.

The C's are PTA members and active on committees. Mrs. C. helps out in the library and is a frequent field trip volunteer, as well as helping with preparation of two of Spring Glen's newsletters. Mr. and Mrs. C. put into practice the guidelines offered to parents for supporting their children's learning: they provide encouragement to their son regarding his homework, help monitor his homework time, and have him practice writing his spelling words at home. They also review the materials sent home weekly by their son's teacher and sign a sheet indicating they have looked over his work.

The dramatic change in their son's school performance and attitude was repeatedly noted by Mr. and Mrs. C. "We plan to stay involved," said Mr. C. "We like our son's teacher and the Spring Glen program," added Mrs. C. "We like everyone here. Even the custodian is nice."

Mrs. B. Mrs. B has daughters in grades one and three. A former teacher herself, Mrs. B knows the value of parent involvement and enjoys supporting her children's school experience. She has been involved with Spring Glen since it opened its doors.

Mrs. B. had been disenchanted with the neighborhood school her older daughter attended in grades one and two. When she volunteered in the classrooms at that school, she found that she would wind up actually assuming teaching responsibilities, because important teaching functions were not being taken care of by the regular teacher. Mrs. B. felt this was inappropriate and undesirable, and she is pleased that at Spring Glen, she is utilized the way a parent volunteer should be — printing signs and poems, cutting and pasting materials as requested by the teacher, and so on. She also participates with her children in the RICH program.

Mrs. B describes herself as a conservative person, and part of her motivation for volunteering is to keep an eye on the way controversial parts of the curriculum are presented. She has found no cause for distress in Spring Glen's handling of these subjects.

She intends to remain involved with Spring Glen's program and anticipates that the nature of her involvement will change as her children become older. Of her feelings about the Spring Glen staff, Mrs. B. says, "People are very friendly. It gives you a warm feeling from the very beginning."

Mrs. H. The mother of a first grader who also attended Spring Glen as a kindergartener, Mrs. H. first learned about the school from a newspaper article. After attending a parent/community meeting at which Del Morton described Spring Glen's program, she decided to enroll her daughter.

Mrs. H. is the chairperson for the RICH program, a responsibility which includes informing parents about the program and how it operates, carrying out the recordkeeping needed to track children's reading accomplishments, and updating the hallway display indicating the progress of each class in numbers of minutes read. These duties keep her occupied for about four hours each Wednesday.

On Fridays Mrs. H. is a classroom volunteer, helping the teacher by constructing materials for learning activities. "They can't keep me away from this school," says Mrs. H. "I love it. You feel like you're all family."

For more information about the Parent Partnership component or other aspects of Spring Glen's program, contact Del Morton, Principal, Spring Glen Elementary School, 2607 Jones Avenue South, Renton, Washington 98055, (206) 859-7494.

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